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The Influence of Urban Factors Upon the Fertility of the White Rural-Farm Population of South Carolina.

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THE INFLUENCE OF URBAN FACTORS UPON THE FERTILITY OF THE WHITE RURAL-FARM POPULATION OF SOUTH CAROLINA

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ABSTRACT

The major source of population increase in the United States stems from the high fertility performance of the rural population. Despite repeated study by demographers more information is required.

This study analyzed proposed relationships between the fertility of the white rural-farm population of South Carolina and:

I. The extent to which that population was dominated by urban society.

II. The extent to which that population had effected a partial transfer to an urban economy.

III. The socio-economic status of that population.

South Carolina was taken as the area of study because it had sufficient population in the categories pertinent to the study. Data were obtained from the United States Bureau of the Census enumerations of population, agriculture, and housing. Consequently, the county was the unit of analysis and the effective fertility ratio was the measure of fertility.

Urbanism was measured by indexes of per cent of white population classified as urban, size of largest urban community, number of urban communities, and the total urban population. No relationship was revealed by the use of any of these indexes. No relationship was uncovered by either

the simple ranking of counties by urbanism or by grouping the counties by homogeneous fertility performance or by homogeneous socio-economic characteristics and ranking the groupings by urbanism. It was shown that the fertility of the white rural-farm population tended to be higher than the fertility of the white urban population within the same metropolitan area. Also, it was revealed that the fertility of the whole urban people declines with increased urban size.

It was disclosed that the fertility of the white rural-farm people was related inversely to that people's pursuit of a partial urban economy. The fertility of the rural-farm whites increased as the percentage of employed white population engaged in agriculture increased. In a similar fashion it was shown that the fertility of the rural-farm whites declined as their pursuit of off-farm employment and part-time farming increased when these activities were associated with probable urban employment.

The fertility of the white rural-farm people was revealed to be inversely related to their socio-economic status. Indexes on the general farm economy, the reward distribution system, and the level of living of the white rural-farm people were all inversely related to the people's fertility performance. To some extent this was true for the simple ranking of counties. It was true for rankings of groups of counties having similar fertility performances and for

groups of counties having similar socio-economic characteristics. To a large extent the relationship was limited to one between extremes. That is, the white rural-farm people characterized by very low socio-economic conditions had very high fertility and vice versa. But those with moderate status did not occupy a moderate position in fertility performance.

CHAPTER ONE

THE PROBLEM AND THE METHODS FOR ITS ANALYSIS

The Problem

Demographers have demonstrated that the rural people of the United States have a fertility which exceeds that of the urban people. Studies made by P. K. Whelpton indicate the differential has existed since 1800.[1] This is shown for the white population in Table I. Data presented by the National Resources Committee indicate the differential existed among native white women in 1920 and 1930 for each of the Bureau of the Census' population regions.[2] These data are reproduced in Table II. Lorimer and Osborn present figures showing that from 1925-1930 rural-farm and rural-nonfarm women produced children in excess of the number needed for replacement while women in communities of 25,000 or more people did not reproduce enough for replacement.[3] Equivalent figures are quoted in Table III. In two separate studies Thompson has shown a differential in fertility by

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[1] P.K. Whelpton, "Industrial Development and Population Growth," Social Forces, VI (1929), 458-467, 629-683, 462.

[2] National Resources Committee, Population Statistics, National Data (Government Printing Office, Washington, D. C., 1937), pp. 40-41.

[3] Frank Lorimer and Frederick Osborn, Dynamics of Population (New York: The MacMillan Co., 1934), Figure 10, p. 27.

the size of the community with fertility increasing as the community became smaller.[4] The Bureau of the Census has analyzed data for 1940 which revealed that the urban population had a fertility less than that needed to replace itself, while both the rural-farm and the rural-nonfarm populations had a fertility in excess of that needed for replacement.[5]

This rural-urban fertility differential prevails in both the Negro and the White races. Information supplied by the National Resources Committee indicates that Negro fertility is higher in both the rural-farm and rural-nonfarm populations than in the urban population, and that it varies inversely with the size of the urban community.[6] Data demonstrating these relationships appear in Table IV. These tables indicate the rural-urban differential is found in all of the Bureau of the Census' population regions of the United States.[7]

Furthermore Thompson quotes demographic studies which in-

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[4] Warren Thompson, Ratio of Children to Women in the United States, 1920 (Government Printing Office, Washington, D. C., 1931) and Warren Thompson, Average Number of Children per Woman in Butler County, Ohio, 1930; A Study in Differential Fertility (United States Department of Commerce, Washington, D. C., 1941).

[5] Vital Statistics, Special Reports, "The Net Reproduction Ratio," Volume 10, Number 20 (Government Printing Office, Washington, D. C., 1941).

[6] National Resources Committee, The Problems of a Changing Population (Government Printing Office, Washington, D. C., 1938). pp. 129-134.

[7] See in particular Table II in this text.

Table I: Children 0 to 4 per 1,000 Women 16 to 44 in the United States by Selected States (White Population Only[1]) [2]

Year	United States	Agricultural states	Non-agricultural states	Industrial states
1940	336	431	392	306
1930	402	526	454	370
1920	489	629	534	458
1880	611	759	640	500
1840	835	966	773	697
1800	1000	1043	962	786

1. In 1930 Mexicans are included with whites. No change has been made in the classification of states since 1920.

2. Original table by P.K. Whelpton as abridged and brought up to date by Warren Thompson, Population Problems (third edition; New York: McGraw-Hill Book Co., 1942), p.167.

Table II: Standardized Number of Children 0 to 4 per 1,000 Native White Women 20 to 44 for Urban Groups and Rural Areas, United States and Divisions, 1930 and 1920[1]

Area	United States and divisions by year[2]									
	United States		New England		Middle Atlantic		South Atlantic		East South Central	
	1930	1920	1930	1920	1930	1920	1930	1920	1930	1920
All areas	499	555	419	407	417	442	620	738	681	759
Urban	380	399	383	368	366	386	414	452	430	453
100,000 and more	337	350	345	330	331	350	348	420	394	389
25,000 to 100,000	390	403	386	360	375	395	422	473	416	421
10,000 to 25,000	430	449	419	399	429	448	463	511	456	480
2,500 to 10,000	462	495	445	430	450	483	505	571	490	537
Rural	683	745	552	553	603	614	773	878	811	873
farm	752	815	622	608	649	641	839	940	858	917
non-farm	609	647	532	528	589	600	707	785	724	765

1. National Resources Committee, Population Statistics, National Data (Government Printing Office, Washington, D.C., 1937), pp. 40-41.

2. Abridged.

Table III: Net Reproduction Rates for White Women by Urban and Rural Residence for the United States and Regions: 1940 and 1930[1]

Region	1940[2]				1930[2]			
	All	Urban	Rural non-farm	Rural farm	All	Urban	Rural non-farm	Rural farm
United States	94	74	114	140	111	90	133	159
North	87	74	109	133	104	91	128	150
South	110	76	120	145	132	92	145	169
West	94	76	119	134	99	79	128	151

1. Bureau of the Census, United States Census of Population: 1940 (Series P 5, Number 13, Washington, 1941).

2. Abridged.

Table IV: Reproduction Rates per Generation Among Negro Women by Size of Community[1,2]

Size of community	Generation reproduction rate[3]
United States	1.13
Urban	0.72
100,000 and more	0.68
25,000 to 100,000	0.72
10,000 to 25,000	0.80
2,500 to 10,000	0.84
Rural	1.61
Rural-nonfarm	1.23
Rural-farm	1.80

1. National Resources Committee, Problems of a Changing Population (Government Printing Office, Washington, D.C., 1938), p.134.

2. Abridged.

3. 1.0 is needed for replacement.

dicate that rural-urban fertility differentials also exist in England, Wales, and Germany.[8]

Demographers have clearly demonstrated the existence of a rural to urban migration which has resulted in the maintenance or increase in population in those communities which are, themselves, not replacing their populations. No first-hand data are available on rural-urban migration prior to 1920. However, certain inferences can be made. Whelpton's study has shown that rural fertility has exceeded urban fertility at least since 1800. In the absence of migration it would be expected that the rural population would increase more rapidly. In later years when the urban population did not replace itself, an actual decline in the urban population would be expected. Census data from 1790 onward indicate the opposite. Before 1840 the urban population increased on an average twice as fast as the rural population; following 1840, urban increases have been frequently four times as great proportionally as rural increases. Data supporting these generalizations appear in Table V.[9] Since 1920 the Bureau of Agricultural Economics, United States Department of Agriculture, has made annual estimates of the movement to and from farms. With the exceptions of the years 1932 and 1945, there has been a net out-migration from farms

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[8] Warren Thompson, Population Problems (Third Edition; New York: McGraw-Hill Book Co.,1942), pp. 176-184.

[9] The sharp increase in the urban population since 1840 includes increases stemming from heavy immigration.

Table V: Per Cent of Increase of Rural and Urban Population in the United States[1,2]

Census year	Per cent of increase		
	All	Urban	Rural
1940	7.2	7.9	6.4
1930	16.1	27.3	4.4
1920	14.9	29.0	3.2
1910	21.0	39.3	9.0
1900	20.7	38.4	12.2
1890	25.5	56.5	13.4
1880	30.1	42.7	25.7
1870	22.6	59.3	13.6
1860	35.6	75.4	28.4
1850	35.9	92.1	29.1
1840	32.7	63.7	29.7
1830	33.5	62.6	31.2
1820	33.1	31.9	33.2
1810	36.4	63.0	34.7
1800	35.1	59.9	33.8
1790			

1. Warren Thompson, Population Problems (third edition; New York:McGraw-Hill Book Co.,1942), p.396.

2. Abridged.

Table VI: Migration to and from Farms in the United States, 1920 to 1946[1,2]

Years	Arrivals from non-farm areas	Departures for non-farm areas	Net migration from farms
1920 - 1924	5,370,000	8,701,000	3,331,000
1925 - 1929	7,770,000	10,735,000	2,965,000
1930 - 1934	6,701,000	7,677,000	976,000 [3]
1935 - 1939	4,044,000	6,816,000	2,772,000
1940 - 1944	4,134,000	9,556,000	4,729,000

1. Paul Landis, Population Problems (New York:American Book Co., 1948), p.425.

2. Abridged.

3. In 1932 there was a net migration to farms of 325,000 people.

of 700,000 to 800,000 people per year. The data are presented in Table VI.

This out-migration is attributed to certain attractions pulling the farm population away to the city and certain stresses within the farm world pushing the prospective migrant forth. These "pulls" include economic opportunity, adventure, and the values attached to urban life. The "pushes" include improved agricultural technology and excessive fertility.[10] In all of this, the basic feature is the original factor, the over-production of people relative to the economic and social resources of the rural area.

With the virtual cessation of immigration since 1924, the size and characteristics of the population have been dependent upon internal dynamics.[11] The dynamics have been shown to be to a considerable extent a function of the rural population. It becomes important to trace with the utmost care the exact fertility performances of the rural population, to distinguish variations in time and space, and to relate these to socio-cultural causal factors. With the explicit resolution of these phenomena, programs for the adequate

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[10] Carter Goodrich, Migration and Economic Opportunity (Philadelphia, Pennsylvania: The University of Pennsylvania Press, 1936).

[11] Restrictive immigration laws effectively limit yearly population from this date to a maximum of 154,270 persons from all quota countries. Immigration law as of January, 1953 permits a maximum of 154,567 persons per year from all quota countries.

training, channeling, and use of the population resources of this country can be formulated.

Several studies are indicative of variations in the fertility patterns of rural people. Notestein's investigation demonstrated a rise in fertility performance from farm owners to farm renters to farm laborers.[12] The percentage increases are respectively 12 per cent and 9 per cent. At the same time farm owners showed a fertility 11 per cent higher than that of unskilled urban workers.

Beegle and Smith working on a county basis demonstrated a wide variation in the white rural-farm fertility performance.[13] Smith associates this phenomenon with the degree of rurality, and he singles out as being the most rural and having the highest fertility rates the southern Appalachians and the Rocky Mountains followed by the South generally. The National Resources Committee, working with intrinsic rates of natural increase for 1930, presents essentially the same picture.[14] Within South Carolina the Beegle and Smith data indicate generally a farm fertility

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[12] Frank Notestein, "The Differential Rate of Increase Among the Social Classes of the American Population," Social Forces, XII (1933), 28.

[13] J. Allan Beegle and T. Lynn Smith, Differential Fertility in Louisiana, Louisiana Agricultural Experiment Station Bulletin 403, Baton Rouge, Louisiana, 1946, Figure 17, p. 40.

[14] National Resources Committee, Problems of a Changing Population, pp. 122-123.

variation between the eastern cotton-tobacco counties and the Piedmont cotton-general farming counties.

Specialized studies by Belcher and Duncan investigate specifically the fertility experiences of village populations.[15] Belcher found an inverse relationship between village size and fertility. This was maintained when the type of farming area was held constant. Fertility of village populations varies between farming areas, rising from a low in the wheat area through general, cotton, and subsistence areas to a high in livestock areas. Belcher attributed these phenomena to variations in the cash value of the different farming operations.

Duncan's study affirms the inverse relationship between size of village and fertility. However, he suggested the involvement of several new factors. Village fertility was shown to vary with the distance of the village from the nearest metropolitan community, the type of farming practiced in the area, the average monthly rental in the village, and the per cent of poor housing in the village. The last two factors were of major importance; the first three were of moderate to limited importance. By holding each variable constant Duncan demonstrated that the socio-economic factors

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[15] John Belcher, "Fertility of Village Residents of Oklahoma," Social Forces XXIV (1946), 328-331; and Otis Duncan, "Fertility of the Village Population in Pennsylvania," Social Forces XXVIII (1950), 304-309.

were at the base of the original fertility variations by village size.

While village studies do not refer specifically to rural farm populations, they do, as an intermediate, contribute to the understanding involved. Of major importance are the socio-economic factors.

The above-cited studies carry sufficient insight to hypothesize the appearance of many of the differentials of fertility within the rural world. Thus, the factor of education can be expected to influence rural fertility variations. Numerous studies have identified an inverse relationship between years of schooling completed and fertility performance. Primary distinction occurs between persons who have a high school and/or a college education, and those possessing a grade school education or less. Little difference occurs between persons with a high school education and those having a college degree.[16]

Religious differences can also be expected. As Roman Catholic doctrine denies the use of contraceptives, the only reliable method of birth control, the fertility of its adherents should and does exceed that of the memberships of other denominations. The religious differential is much

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[16] National Resources Committee, Problems of a Changing Population, p. 145.

obscured by the other interrelated socio-cultural factors. While its significance apart from other factors was demonstrated by Notestein's work,[17] other studies indicate it is diminishing in importance.[18]

Nativity is shown to be a factor in the fertility of the urban, rural-nonfarm, and rural-farm populations. The foreign-born population exhibits a greater fertility than the native-born population.[19] However, continued urban residence is associated with a decreased fertility on the part of the foreign born and the differential tends to disappear.[20]

The final differential to be considered is that of race. Data presented by the National Resources Committee indicate that Negros have a higher fertility than whites.[21] However

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[17] Frank W. Notestein, "Class Differences in Fertility," The Annals of the American Academy of Political and Social Science; CLXXXVIII (1936) pp. 26-36.

[18] A.J. Jaffe, "Religious Differentials in the Net Reproduction Rate," American Journal of Statistics, XXXIV (1939), 335-342.

[19] National Resources Committee, Population Statistics, Urban Data, (Government Printing Office, Washington, D.C., 1939) p. 21.

[20] Samuel Stouffer, "Trends in Fertility of Catholics and non-Catholics," American Journal of Sociology, XXXXI (1935), 153.

[21] National Resources Committee, Problems of a Changing Population, p. 128.

this same source indicates the fertility of Negro females in the North is insufficient for replacement. A study by Beegle and Smith of Louisiana Negro and white fertility indicates that the greater fertility of the Negro is a function of his more rural environment.[22] A study by Thompson shows the Negro-white differential does not hold for northern and southern cities;[23] and a study by Notestein shows that it does not appear in the East North Central census division.[24]

While data and citations have been presented on the existent fertility differentials of rural and urban people, the probable causes have not been considered. Behind established behavior patterns lie motivations. Largely probable but not verified motivations are offered by demographers. Many have assumed that a basic reason for reduced urban fertility is the financial burden of rearing and training the young in urban areas. This is thought to be less restrictive in rural areas where the family raises a part or all of its provisions and where the young of the family can contribute their energies more effectively and at an earlier date. Moreover, the farmer, as an entrepreneur, can extend his capacities

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[22] Beegle and Smith, op. cit., p. 27.

[23] Thompson, Ratio of Women to Children in the United States, 1920, pp. 141-145.

[24] Frank Notestein, "Differential Fertility in the East North Central States," Milbank Memorial Fund Quarterly, XVI (1938), pp. 173-191.

while the urbanite as an employee can not. This factor, however, would not account for the rural-nonfarm dweller.

Within the urban world the procreating family's attentions are more frequently drawn outside of the family circle. Extra-familial activities are hampered by infants and young children. Some demographers, therefore, propose that low urban fertility is the result. On the other hand, the farm family is more strongly bound to its habitat. Its members' energies are confined. The prevailing way of life of the entire rural community does not permit extensive non-familial activity. Therefore, children are not a social burden and restrictions on family size are less frequently practiced.

Finally, it is thought that as financial and social conflict are minimized in the rural world as causes of restricted fertility, the older values surrounding the family and procreation are maintained. The unchallenged "Cake of Custom" is accepted as right and it is followed through either belief or convenience. The roles of the wife as fecund and mother and the husband as virile and father prevail. An ultimate goal is producing and rearing a family.[25]

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[25] For discussion of causes see Thompson, Population Problems, pp. 205-212, and T. Lynn Smith, Sociology of Rural Life (Third Edition, New York: Harper and Brothers, 1953) pp. 142-145.

The Hypotheses

The cited analyses of fertility permit the construction of two hypotheses to guide this study. The fertility experience of the farm people is not uniform. Underlying socio-cultural differences basic to the various differentials of fertility are operative. In this complexity of interrelationships diverse fertility patterns covering relatively homogeneous socio-cultural groupings exist.

Demographers have shown that rural people are more fertile than urban people. Therefore it is proposed that the more rural the farm people of South Carolina are the higher their fertility will be. Rurality is taken to mean an absence of urban contacts and the prevalence of an agricultural economy. Such phenomena can be investigated by establishing indices of urbanity or rurality and associating them with recognized measures of fertility.

It is further proposed that within the rural world there is an inverse relationship between the prevailing socio-economic conditions of the rural-farm population and the population's fertility performance. This relationship can be demonstrated by associating fertility with appropriate indexes of socio-economic conditions such as farm value, farm income, and farm family level of living.

The Residential Concepts

An aerial view of the American society would show large

dense clusterings of humanity ringed by lesser clusterings gradually diminishing to isolated residences. The clearly evident material accomplishments of society such as roads, railroads, canals, and telephone, telegraph, and electric power lines would indicate the complicated interdependence and oneness of this society. If the structure of social relationships were visible, the complete interdependence would be seen. From the nucleus of the family, widening circles of social ties unite men as one. Systems of the market, the state, religion, education, and recreation weave and combine in interdependent patterns holding all of the members of the society together.[26]

Yet, all men's lives are not the same. Daily activities, life chances, and hopes and aspirations are so differentiated that numerous ways of life appear separating off large groupings of men. A generic differentiation separates men on the combined basis of residence and occupation. In the above aerial view, the large clusterings of humanity centering around industrial and mercantile production and distribution have been termed cities and the way of life of its people, urbanism. The area of isolated units centering around farming and allied pursuits is termed the country and its way of life, ruralism.

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[26] This descriptive device is enlarged in Robert MacIver and Charles Page, Society (New York: Rhinehart and Co., Inc., 1949) p. 136, ff.

But where does the one end and the other begin? From the aerial view there is no sharp division at which the point can be fixed. From its point of highest concentration the city sprawls out, gradually diminishing. Greater and greater distances separate residences and places of gathering. The only clue is the gradient of density extending from high to low. In terms of government there is a sharp dividing line containing the legal activity of the city but beyond these stretch all of the other social relationships holding city and country together.

While the divisions are nebulous, there are, sociologically, several characteristics differentiating the city and country. Among numerous treatments, that by T. Lynn Smith is both concise and accurate.[27] Nine variables are singled out: size, density, occupation, environment, social differentiation, social stratification, social mobility, social interaction, and social solidarity. The urban community has more members, and these live in greater proximity. As a result, there are a greater number of relationships, many of these are marginal acquaintanceships marked by anonymity. Greater formality must be observed both to conserve energy and to render order. And, the personality of the actor is submerged in the mass of faces of the normal day's contacts. The reverse holds true for the rural community.

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[27] T. Lynn Smith, The Sociology of Rural Life, pp. 18-37.

Occupational diversity marks the urban community. In rural areas a common occupation prevails and with it similar problems, expectations, and technical competence. The urbanite leaves his work at the end of the day. The ruralite lives in his perpetually; its demands on him are more intense and enduring.

The ruralite retains contacts with the natural environment-climate, weather, soil, topography, and growth - which are more or less effectively screened off for the urbanite by the physical accomplishments of the city. The influence of this orientation is far-reaching.

Urbanism is marked by extreme social differentiation. Separate groupings are innumerable. In the course of a normal day's activity the urbanite takes part in these groupings, each possessing special functions, rendering him needed services. With fewer contemporaries the ruralite belongs to fewer groups, each of which combines a number of functions. In his separate groups he is much more likely to encounter familiar faces known to him from his other associations.

In the same fashion, social stratification is less marked in those rural communities characterized by family farms. Common memberships in different social groups prevents extensive stratifying. The more common mode of life prevents the appearance of separate interests and possessions which might serve as criteria of dissimilarity or encourage their appearance. It should be noted however that the agricultural

populations of many societies are highly stratified.[28] Extensive stratification is also found in the plantation area in the United States.[29]

Necessarily, social mobility is also lessened for the rural dweller. Fewer groups mean fewer opportunities for change of membership, and the absence of extensive stratification serves as a similar barrier to vertical mobility.

The type of social interaction also varies. Size and complexity as previously mentioned prevent the complete emergence of personality in urban relationships. Standard institutionalized forms are needed to expedite action. In opposition to this secondary form of interaction, the ruralite is accustomed to direct, face to face, personal contacts. He "knows" the people he deals with. To him, they are not formalized actors with functional names; they are persons.

While considerations of these factors give a truer understanding of urbanism and ruralism, it does not provide a clear, set boundary between the two. Each of these is an attribute characteristic of human society. Simply, they are

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[28] For example see T. Lynn Smith, Brazil: People and Institutions (Baton Rouge, Louisiana: Louisiana State University Press, 1946), Ch. 15.

[29] T. J. Woofter, Jr. et. al., Landlord and Tenant on the Cotton Plantation (Works Progress Administration Research Monograph V, Government Printing Office, Washington, D. C., 1936).

possessed to a greater or lesser extent in some areas of life than in others. For purposes of explicit study some definitive boundary must be established. Such boundaries have been attempted by the Bureau of the Census, and these will be used in this study although attention is drawn to their summary treatment of the above factors. Specifically, size, density, and occupation are considered by the Census Bureau.

Urban residence is defined as residence in, "(a) places of 2,500 inhabitants or more incorporated as cities, boroughs, and villages, (b) incorporated towns of 2,500 persons or more..... (c) the densely settled urban fringe, including both incorporated and unincorporated areas around cities of 50,000 or more and (d) unincorporated places of 2,500 inhabitants or more outside any urban fringe."[30]

Rural residence becomes residence in any other place. It has been subdivided into rural-farm residence and rural-nonfarm residence. The rural-farm residence is residence "on farms without regard to occupation."[31] A farm is any area of three acres or more on which crops or livestock are

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[30] Bureau of the Census, United States Census of Population: 1950, Volume II, "Characteristics of the Population," Part 1, United States Summary, Chapter B (Government Printing Office, Washington, D. C., 1952), p. 6.

[31] Ibid., p. 7.

grown for a sale of $150 or more, or any smaller piece of land from which crops or livestock are marketed for a minimum of $150 per year.[32]

Rural-nonfarm residence is any other rural residence. It is in the main a catch-all category consisting of "isolated non-farm homes in the open country, villages and hamlets of fewer than 2,500 inhabitants, and some fringe areas surrounding the smaller incorporated places."[33]

The Measures of Fertility

Fertility is the actual reproductive experience of a woman or a group of women in terms of the number of offspring produced. It is a partial realisation of fecundity, the biological capacity of a woman to reproduce.

A number of measures have been derived for the comparisons of the fertility of women or groups of women. They have been developed with reference to the available data on births, children, women, and deaths. However the following discussion is limited to those measures which will illustrate the characteristicsof a comprehensive measure of fertility, and which

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[32] Bureau of the Census, United States Census of Agriculture: 1950, Volume I, "Counties and State Economic Areas," Part 15, "North and South Carolina" (Government Printing Office, Washington, D. C., 1952) p. 12.

[33] Bureau of the Census, United States Census of Population: 1950, Volume II, Part 1, Chapter B, p. 12.

can be based upon census data alone. One such measure is the crude birth rate. This is a simple ratio of the total number of live births in a given time and area to the total population of the same time interval placed on some arbitrary basis (generally per 1000). This measure needs two sets of data: 1) the yearly number of births, 2) the total population. Number one can be obtained from Vital Statistics reports published annually. Number two must be obtained directly from the decennial census collected the first year of each decade and published by the Bureau of the Census.

The following is a sample computation of the crude birth rate for the South Carolina white population in 1950.[34]

$$\frac{\text{Number of births}}{\text{Total population}} \times 1000 = \frac{30,755}{1,293,405} \times 1000 = 23.8$$

While this measure may be computed with ease, it has several drawbacks. Two separate sources of data must be available. Birth statistics for any part of the United States are not available before 1915, and all of the states were not included in Vital Statistics reports until 1933.

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[34] These and subsequent data used in illustrating the fertility measures come from: Bureau of the Census., United States Census of Population: 1950, Volume XI, "Characteristics of the Population," Part 40, South Carolina, Chapter B, (Government Printing Office, Washington, D. C., 1952): and Public Health Service. Vital Statistics of the United States: 1950. Volume II. (Government Printing Office, Washington, D. C., 1953).

An official count of population is available only for the beginning year of each decade. Of special importance is the unreliability of the measure itself. It fails to consider important characteristics of the population. Women are the production unit, and they must be in the fecund period of their lives. Unbalanced populations containing large numbers of men or of the aged or the young would have, by this measure, the same measured fertility as a balanced population, sex and age wise, although the women of the former are actually bearing more children per woman.[35]

Other measures have been developed to avoid this error. Standardized birth rates may be computed. These rates hold constant any factor thought to exert an influence on the reproductive experience. By way of example, an age specific birth rate is the ratio of the number of live births experienced by women of a particular age group placed on some arbitrary basis (generally per 1000). This measure standardizes for age and sex.

The following is a sample computation of the age specific birth rate of the white women of South Carolina aged 15-19 for 1950.

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[35] For a critique of the crude birth rate, see T. Lynn Smith, Population Analysis (New York: McGraw-Hill Book Co., 1948), p. 194.

$$\frac{\text{Number of children born to South Carolina white women aged 15-19}}{\text{Number of South Carolina white women aged 15-19}} \times 1000 = \frac{4,660}{54,554} \times 10^3 = 85.4$$

In the employment of this measure, a set of standardized rates must be computed for all age groups in the fecund period. Such a set is frequently called a fertility schedule. The following is a sample computation of the fertility schedule for the white women of South Carolina for 1950.

(1) Age	Number of women	Number of births	Age Specific Birth Rates
15-19	54,554	4,660	85.4
20-24	54,784	10,145	185.2
25-29	57,585	8,223	142.8
30-34	51,061	4,639	90.8
35-39	48,227	2,340	48.5
40-44	41,347	636	15.4

Such a schedule is an accurate, insightful measure of fertility performance, however, it is awkward to present and interpret, and its control of the difference of age and sex is lost in its unwieldiness.

A measure has been developed which eliminates the need for the two sources of data while it retains the controls on age and sex. This is the effective fertility ratio, a ratio of the total number of children 0 through 4 years of age to the total number of women aged 15 through 44 years for the same area and time placed on some arbitrary basis (generally per 1000). The age span 15 through 44 years is conventionally accepted as the childbearing period. Smith,

in a tabular demonstration of the computation of standardized birth rates for the United States and urban and rural populations, shows extremely low fertility experience for the age groupings through 10-14 years and 45 through 54 years.[36]

The following is a sample computation of the effective fertility ratio for the white women of South Carolina for 1950.

$$\frac{\text{Number of children 0-4}}{\text{Number of women 15-44}} \times 10^3 = \frac{154,696}{307,558} \times 10^3 = 503.0 = \text{e.f.r.}$$

The data for this measure may be obtained entirely from the Census. The measure standardizes for age and sex and the data are available for a variety of areas. The term effective is appropriate as the data are already standardized for experienced mortality. It has the advantage of easy computation. It has, however, the major limitation that the data for its calculation is available only for the years in which the census is taken.

The Data

The two sources of data necessary for the described fertility measures are available immediately. Both are pro-

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[36] Ibid., Table 21, p. 196.

vided by the United States Government. The Bureau of the Census provides compiled data on the total population decennially. This census is accepted legally as an accurate count for the first day of April of the beginning year of each decade. It is a de jure census; that is, it refers each counted person to his normal or usual residence regardless of his location at the time of the count. The census has been continuous since 1790.

Sufficient refinements of the population by social and economic characteristics are present to make possible a detailed study of fertility. Census information has been shown to be highly reliable. Studies of the accuracy of the 1950 census indicate an underestimation of 1.4 per cent of the population.[37] This under enumeration was greatest in the rural areas and consequently in the South.[38] Under registration is highest in the age group under five years, where it is estimated to be 4.8 per cent.[39] Incorrect enumeration by sex is thought to be negligible and is not estimated. These errors are not sufficient to preclude the use of the data.

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[37] Bureau of the Census, United States Census of the Population: 1950., Volume II, Part 1, Chapter B, p. 22.

[38] Ibid., p. 22.

[39] Ibid., p. 20.

The second source of data, published by the Public Health Service, consists of vital statistics, registrations of births and deaths. These data are first collected by local government units and are then compiled and published by the Bureau of the Census. Complete records for the United States are not available before 1933. The data are conceded to be less reliable than those of the Census.

The Area of Study

The rural people of the state of South Carolina were selected for the study. The author was employed at a South Carolina institution, and he felt additional insights on the questions involved could be obtained from his colleagues. In addition, his selection of this area gave him a sense of personal involvement.

The selection of a state as the area of analysis presented a perimeter of suitable size, yet not too large for one individual with limited facilities to undertake. The total population in 1950 of 2,117,027 was located in the State's 46 counties. The latter is the unit of analysis in the study, and 46 is a large enough number of units to permit the use of correlations to test the strength of relationships found to exist.[40]

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[40] Thomas McCormick, Elementary Social Statistics (New York: McGraw-Hill Book Co., Inc., 1941), p. 182.

The population is distributed so that sufficient numbers are present in all of the categories pertinent to the study. The population is nearly equally divided between urban, rural-nonfarm, and rural-farm residences. There are 777,921 urban people composing 36.7 percent of the total population, 636,459 rural-nonfarm people equalling 30.2 per cent of the total population and 700,611 rural-farm people composing 33.1 per cent of the total population. Therefore, none of the residential groupings is spurious.[41]

Sufficient divergence in urban size is also found. There are three metropolitan communities - Greenville, Charleston, and Columbia. Their respective populations are 168,152 people, 164,856 people, and 142,568 people. There are two other good sized urban communities - Spartanburg with 36,795 people and Rock Hill with 24,502 people. There are 78 other urban places.[42] Therefore, there should be sufficient play between urban and rural forces.

In the same fashion South Carolina's rural population is of adequate size for the study. By 1950 census figures

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[41] Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Chapter B, Table 10.

[42] Ibid., Tables 10 and 11.

Carolina is the eighth most rural state in the union.[43]

The state has been subdivided on a county basis into types of farming areas by experiment station specialists at Clemson College.[44] There are six such farming areas. While the entire agricultural orientation of the state is towards the production of cotton, there are significant specialization areas. These include a tobacco area, an orchard area, a truck-farming area, and poultry-farming area. There should be, therefore, considerable variation in farm economy and social organization.

The report cited above also demonstrates the absence of cultural islands of a nationality or religious basis which might bias the areal analysis. While place names mark the original location of such groupings, their current import is negligible.[45]

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[43] South Carolina is exceeded in rurality only by the following states: North Dakota (73.4 per cent), Mississippi (72.1 per cent), Arkansas (67.0 per cent), South Dakota (66.8 per cent), North Carolina (66.3 per cent), West Virginia (65.4 per cent), and Vermont (63.6 per cent). It is almost equalled by Kentucky with 63.2 per cent.

[44] J. L. Fulmer, Types of Farming and Farm Business Studies in South Carolina, South Carolina Agricultural Experiment Station, Bulletin 310, Clemson, South Carolina, 1937.

[45] Ibid., Figure 12, p. 19.

Preliminary scanning of 1950 Census data on the Socio-economic characteristics of the rural-farm population bear out the belief in sufficient variability for the proposed study.

At the same time, South Carolina's population offers considerable homogeneity in several characteristics associated with fertility variability. Such homogeneity in this case will be considered as rendering these factors constant, and tabular analysis will give them no consideration.

Religiously, the state is predominantly Protestant, and within this it is largely Baptist and Methodist. In 1936 approximately 97.7 per cent of the State's religiously-organized population was Protestant, 1.6 per cent was Roman Catholic, and 0.7 per cent was classified as belonging to other religions.[46] Of the Protestants 401,170 or 58 per cent were Baptist and 174,005 or 25 per cent were Methodists. It must be recognized that these proportions were only those persons officially listed upon church roles or registeries. While figures for 1936 were the most recent available, the organized traditional strengths of the prevailing religions can be safely presumed to be retained and the proportional strengths

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[46] Bureau of the Census, United States Census of Religious Bodies: 1936, Volume I (Government Printing Office, Washington, D. C., 1941), Table 29. There were 693,694 Protestants, 11,543 Catholics, and 4,926 others.

of the bodies constant.[47]

The population is almost entirely native-born. The prevailing ancestry is Scotch-Irish, German, and French. These ancestories are of such ancient origin that little remains but family names, place names, and Celtic-Nordic physical features.[48] In 1950, of a total population of 1,150,867 people 21 years of age and over, only 6,958 people or 0.6 per cent were born in a foreign country. Of these the majority, 1,830 people, or 26.3 per cent, were resident in the metropolitan area of Charleston, the sea port. Of the original 6,958 people, only 598 or 8.5 per cent are rural-farm residents.[49]

There is also industrial homogeneity. With the exception of Charleston, the urban communities are centered around the manufacture of textiles. In 1947, 70 per cent of the total value created in the process of manufacture

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[47] G. Croft Williams, A Social Interpretation of South Carolina (Columbia, South Carolina: University of South Carolina Press, 1946), pp. 20-21.

[48] Edward McCrady, The History of South Carolina Under the Royal Government (New York: The MacMillan Co., 1899), pp. 120-121.

[49] Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Chapter B, Table 17.

was in textiles.[50] Production runs the entire gamut from the spinning of the thread to the finished material including its conversion to clothing and household articles.

In terms of employed persons this homogeneity also exists. Out of a total labor force of 210,799 persons engaged in manufacturing, 131,447 persons produce textile mill products and another 9,919 persons produce apparel and other fabricated textile products.[51] The last two figures constitute 67.1 per cent of the total number of persons engaged in manufacturing.

In terms of the characteristics associated with variable fertility performance, there are important differences and similarities between the populations of South Carolina and the United States. These will be reviewed as it is presumed that insights gained from this study will be applicable to other population groupings.

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[50] Bureau of the Census, United States Census of Manufactures: 1947, Volume III (Government Printing Office, Washington, D. C., 1950), Table 3, p. 555. Value added is the remainder of the value of shipments minus cost of materials, supplies, containers, transport, and contract work. In that it approximates the values created in the process of manufacture, value added provides the most satisfactory measure of the relative economic importance of given industries available in the Census of Manufactures, Volume III, p. 18.

[51] Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Chapter B, Table 30.

Table VII below, shows the age and sex distribution of population for the United States and South Carolina. South Carolina has a younger population. For whites, Negroes, males, and females, the proportions of population appearing in the age groupings under 10, and 10 through 19 years are larger than those of the United States population.[52]

For South Carolina whites, the per cent of persons aged 20 through 44 is nearly the same as the nation. South Carolina Negros, however, appear to a lesser extent than is true for the nation. Such a break may indicate considerable out migration by Negroes. From the age 45 onward South Carolina's proportions in all the classes are smaller than those of the Nation's population. However, in the age group 65 and over South Carolina's Negroes are nearly proportionally equal to United States Negroes.

The sex ratio for the white United States' population is 99.0, the same as South Carolina's. In the age grouping 20 through 44, the white United States' sex ratio is lower, being 97.0; South Carolina shows much less of a decline with a 98.6 sex ratio. The suggested explanations for these excesses in females is a decline in immigration which is male selective and the superior longevity of women. The more even sex ratio in South Carolina may be explained perhaps by the

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[52] The census classification is "non-white." As almost all non-whites in South Carolina are Negroes, the latter term is used.

Table VII: Per Cent Distribution of Population by Age, Sex, and Race, United States and South Carolina[1]

Location and Age	White				Non-White			
	Male	Per Cent	Female	Per cent	Male	Per cent	Female	Per cent
United States[1]								
Under 1	1399645	2.1	1341092	2.0	203728	2.6	203728	2.5
1 - 9	11759696	17.5	11280643	16.6	1588895	20.6	1587074	19.7
10 - 19	9630360	14.3	9394689	13.8	1341381	17.4	1369436	17.0
20 - 44	24962569	37.2	25746516	38.0	2828338	36.7	3154031	39.2
45 - 64	14016586	20.9	14036545	20.7	1306312	17.0	1277805	15.9
65 and over	5360336	8.0	6013351	8.9	436638	5.7	459212	5.7
All ages	67129192	----	67812836	----	7704047	----	8051286	----
South Carolina[2]						3		
Under 1	15036	2.3	14317	2.2	11849	3.0	12200	2.9
1 - 9	131835	20.4	125749	19.4	106394	26.7	106275	24.9
10 - 19	113837	17.7	110390	17.0	90646	22.7	91702	21.5
20 - 44	249516	38.9	253004	38.9	122504	30.9	141170	33.1
45 - 64	100433	15.6	106065	16.3	46371	11.6	52737	12.3
65 and over	32916	5.1	40315	6.2	19203	5.2	22571	5.3
All ages	643573	----	649832	----	396964	----	426655	----

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part I, Washington, 1952, Chapter B, Table 38.

2. Bureau of the Census, United States Census of Population: 1950, Volume II, Part XXXX, Washington, 1952, Chapter B, Table 15.

3. The census classification is non-white, but in South Carolina this is virtually identical to Negro.

more intensive out-migration of females than males. The Negro sex ratio for the United States is 95.7 while in South Carolina it is 93.0. The ratios at the age grouping 20 through 44 are 89.7 and 86.8, respectively. In both cases the reduction is attributed to the greater longevity of women and to the male selectivity of long distance northern and western migration.

From these characteristics certain implications become evident about fertility performances. In South Carolina both white and Negro populations are younger, and the white sex ratio is more evenly balanced. The latter factor presents a greater potential of marriage. The former places a larger proportion of families in the earlier years of marriage in which the potentials for having children are greater. From this, higher fertility rates can be presumed. In actuality, the variation in fertility between the Southeast and the nation, resulting from variation in age has been shown to account for only a small proportion of the higher fertility performance in the Southeast.[53]

It is apparent that the racial composition within South Carolina is divergent from that of the nation. In South

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[53] Rupert Vance, All These People (Chapel Hill, North Carolina: The University of North Carolina Press, 1945), Figure 76, pp. 101-102.

Carolina 61.1 per cent of the population are white while in the United States population the whites constitute 89.5 per cent of the population. Distinctive social and economic characteristics separate whites and Negroes. It is, therefore, important to separate the races and to discuss the white race's characteristics apart.

The residential distributions of the South Carolina and United States populations are significantly different. As earlier reported, South Carolina is the eighth most rural state in the nation. Of the total population of 2,117,027; 36.7 per cent are urban, 30.2 per cent are rural-nonfarm, and 33.1 per cent are rural-farm. The Negro and white populations of the state are not homogeneous. The white population's residential distribution is 41.9 per cent urban, 32.5 per cent rural-nonfarm, and 25.5 per cent rural-farm. The corresponding percentages for the Negro population are 28.6, 26.4, and 45.0. As the per cent of whites in the total population of the state is 61.1, the bulk of the urban population is white, while the Negroes are primarily rural.

In contrast, the residential distribution for the whites of the United States population is 64.3 per cent urban, 21.1 per cent rural-nonfarm, and 14.6 per cent rural-farm. For the non-whites the percentages are respectively 61.6, 17.2, and 21.2. The South Carolina white population is much less urban than the United States white population,

Table VIII: Racial, Occupational, Financial, Educational, National, and Religious Distribution of the Population by Residence, United States and South Carolina[1,2]

Area and Characteristics	Residence					
	Urban	Per cent	Rural-nonfarm	Per cent	Rural-farm	Per cent
United States						
Race						
White	87014507	64.3	28470339	21.1	19715254	14.6
Negro	9734567	61.6	2710986	17.2	3333096	21.2
Industrial group						
Agriculture	440850	2.2	901741	17.4	5195424	82.6
Manufacturing	11304038	56.6	2524644	48.5	747010	11.9
Wholesale and retail	8425318	41.8	1775613	34.1	346638	5.5
Population over 21, foreign born	8440960	83.8	1088220	10.8	544006	5.4
Median years schooling persons over 21	10.2	----	8.8	----	8.4	----
Median income in dollars	2970	----	2186	----	1567	----
South Carolina[3]						
Race						
White	542262	41.9	420754	32.5	350389	25.5
Negro	235659	28.6	217741	26.4	370222	45.0

Table VIII (continued): Racial, Occupational, Financial, Educational, National, and Religious Distribution of the Population by Residence, United States and South Carolina[1,2]

Area and characteristics	Residence					
	Urban	Per cent	Rural-nonfarm	Per cent	Rural-farm	Per cent
Industrial group						
Agriculture	1938	1.5	7660	7.5	69701	68.7
Manufacturing	79833	59.9	70280	68.5	23821	23.5
Wholesale and retail	51510	38.6	24714	24.0	7956	7.8
Population over 21, foreign born	4950	71.2	1415	20.3	593	8.5
Median years schooling persons over 21	10.3	----	8.4	----	7.9	----
Median income in dollars	2587	----	2343	----	1492	----

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part I Washington, 1952, Chapter B, Tables 34, 41, 44, 55, and 57.

2. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 15, 17, and 30a.

3. With the exception of the racial classification the figures for South Carolina are for the White population alone.

much more rural-nonfarm, and much more rural-farm. However, the rural-nonfarm classification is vague. From general experience, it may be pointed out that South Carolina's rural-nonfarm population is largely a village and hamlet population rather than a metropolitan and urban fringe population.

Once again no complete generalization can be made about this variation. Rupert Vance demonstrated that while rurality explains a portion of the Southeast's superior fertility it does not offer a basic explanation.[54]

The basic nature of the prevailing economy of the two populations can be examined by surveying the numbers of persons employed in agriculture, industry, and wholesale and retail trade. Certain basic differences are observed between the economic patterns of the two populations. For the total United States 6,538,015 persons constituting 20.6 per cent of the total are employed in agriculture. Another 14,575,692 persons or 46.1 per cent are employed in manufacturing businesses. Finally, 10,547,569 persons or 33.3 per cent are employed in the wholesale and retail trades. In contrast to these, out of South Carolina's total of 337,413 persons employed in these same areas, 79,299 persons or 23.5 per cent are employed in agriculture. Another 173,934 persons or 51.5 per cent are employed in manufacturing, while 84,180 persons or 24.9 per cent are employed in

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[54] Ibid., Figure 76, pp. 101-102.

wholesale and retail trades. Therefore, South Carolina exceeds by 2.9 percentage points in agricultural employment and by 5.5 points in manufacturing. The United States population exceeds South Carolina's in employment in wholesale and retail trades by 8.4 points. It would appear that there is a greater polarity of both urban and rural employment in South Carolina. It may be that rural-urban fertility differences discovered in South Carolina will be modified when applied to the nation as a whole.

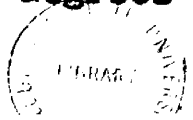
The nativity of South Carolina's population can be contrasted to that of the nation. In South Carolina 0.6 per cent of the population 21 years of age and over is foreign-born. Of these, 71.2 per cent are urban. Only 8.5 per cent are rural-farm residents. In contrast, the United States population contains 10,073,186 foreign-born persons of 21 years of age or over who constitute 6.7 per cent of the population. Of this number, 8,440,960 or 83.8 per cent are urban residents. Only 544,006 persons or 5.4 per cent of the total are rural-farm residents. Nativity is less of an over all factor in South Carolina than in the nation, but a proportionally larger factor in the rural-farm population. In all cases the proportions involved in the rural areas are too small to be of any consequence except in small areas of known ethnic nature.

In terms of median years of formal schooling attained by the adult members of the population 25 years of age and

over, the white populations of the United States and South Carolina are similar. The white rural-farm population of South Carolina has 7.9 median years of schooling as compared to 8.4 for the equivalent United States grouping. The urban populations are identical with 10.2 median years for the United States and 10.3 years for South Carolina. The social significance of one half year of schooling occurring midway in the junior high school program is unknown. It can be tentatively assumed as insignificant. Fertility breakdowns distinguish between convenient grade school and high school levels of attainment. The above figures are intermediate and really too all-embracing to provide grounds for assumptions.

In terms of money income, about $100 difference is found between the white urban and the white rural populations of the United States and South Carolina with the United States being larger. The sum is not great and must be considered in terms of divergent economic demands of the natural and socio-cultural environments of the two populations. Of more important consideration for fertility variation would be the range of incomes and the proportional strengths of areas of this range.

In review the population characteristics of the United States and South Carolina show both basic differences and similarities. The South Carolina population contains a larger percentage of Negroes who are in turn, predominantly



rural residents. Fundamental social and economic differences dictate the separate consideration of whites and Negroes. With regard to the white population, South Carolina is younger and its sexes are more evenly balanced numerically. South Carolina is more rural, having nearly twice the proportion of rural-farm residents as does the United States. In the pattern of the economy a greater proportion of South Carolinians are employed in agriculture and in manufacturing than is, true for the United States. On an average South Carolinians earn $100 less than the national population. Urban South Carolinians are as well educated in terms of years of formal schooling as the urban national population, but rural-farm state residents have one half year less education. Finally South Carolinians as a whole are more frequently native-born.

Basic Unit of Study

The smallest unit of classification of the rural-farm and rural-nonfarm populations published by the Bureau of the Census is the county. This, therefore, becomes the basic unit of analysis in this study.

Certain limitations of the study are inherent in its use. The county is the next smallest political unit to the state. In South Carolina, there are 46 counties. Their average size is 675 square miles, and their average population is 46,022 people. It becomes necessary to consider their populations as being homogeneous. Of course this is not necessari-

ly true. Characteristics attributed to the county at large may really characterize only a segment of it although a necessarily important segment. By way of example, a county bordering the Piedmont and Coastal Plain farming areas may have a split farming population. By dominant practice it may be classified as one or the other; realistically, it has no homogeneous nature.

Equally important, social and economic influences of contiguous areas are not barred by county lines. Segments of a county's population may be influenced more deeply by the characteristics of contiguous populations than by the dominant characteristics of their own county. For example, county A may be characterized by a high degree of rurality while a neighboring county B, is highly urban. B's urbanity is due to a large city located near the border of County A. The people of County A residing near B's city will be influenced by it, but this influence will not be accounted for in their county's characteristics.

The limitations can not be directly accounted for in the analysis. They can be kept in mind only and subjective evaluations of their influence must be made as the analysis of the data warrants.

Summary

The reproductive performance of the people of a society is not uniform. A basic variable is residence. The fertil-

ity of rural people exceeds that of urban people. The maintenance and growth of large towns and cities is dependent upon the excessive reproduction of the rural people and their continued urbanward migration.

It is not correct to presuppose uniform fertility within the rural population. Studies show variations in rural fertility which are related to social and economic factors. Continued study of these variables is advisable for two reasons:

I. More complete demographic understanding.
II. Potential training and channeling of future excess rural population for urban life and use.

The people of South Carolina are taken for study purposes as:

I. About one third of the state's population is rural-farm.
II. There are significant urban clusterings.
III. The population is relatively homogeneous as regards other fertility variables.

This study undertakes the further analysis of the relationship between urbanization and the socio-economic condition of the white rural-farm people and their fertility performance.

CHAPTER TWO

THE INFLUENCE OF URBANISM UPON THE FERTILITY OF THE WHITE RURAL-FARM POPULATION

Urbanism

In a previous section of Chapter I the urban and rural communities were distinguished.[1] It was shown that no clear, definite boundary could be established between the two; that each existed at opposite ends of a gradient of social relationships. The difference in life prospects and behavior was a matter of degree rather than of kind.

Basic distinctions were made in terms of size and density of population, prevailing occupation, extent of exposure to the natural environment, the social processes--differentiation, stratification, interaction, and mobility--and social solidarity.

These factors have combined to form a prevailing way of life for the urbanite termed urbanism. Urban social relationships feature greater complexity and differentiation which in turn foster standardized, secondary interaction and formal controlling devices. Size and differentiation lead to greater tolerance and anonimity. Complex differentiation requires voluntary association, and the size of the group and the marginal membership in groups require formal,

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[1] See this study pp. 15-21

secondary organization.[2]

The National Resources Committee has outlined some of the attributes of the urban community.[3] Demographically the urban community is set off from the rural community. Its age structure features a dearth of young and aged persons and an excess of persons in the productive span of life, ages 20 through 65. Urban residence is also sex selective. This however is a more generalized phenomenon and is dependent upon the dominant economic activity of the particular city. For example heavy industry towns show an excess of males.

Similarly the first and usually the permanent residence of the foreign-born is the city. Major cities that are recipients of the immigrants are characterized by ethnic residential areas where the practiced ways of life are sharply divergent from those of the remainder of the city.

As previously reported the populace of the urban community does not reproduce itself. Maintained size or continued growth are products of excessive rural fertility, here and previously in Europe, and a prevailingly urbanward migration.[4]

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[2] For an elaborate discussion see K. Davis, Human Society (New York: The MacMillan Co., 1949), pp. 329-336.

[3] National Resources Committee, Our Cities: Their Role in the National Economy (Government Printing Office, Washington, D. C., 1937), pp. 7-24.

[4] See this study pp. 1-8.

Suicide is associated with urban life. There is a direct relationship between increases in suicide and increases in the size of the urban community, rate of urban growth, and per cent of aged and males in the population. This has been shown to be related to the secondary structure of the urban social relationships which feature normlessness and social distance.[5]

Family life is diminishing in the urban community. A higher percentage of persons remain single and family size is more severely restricted. Conditions of living and working are not conducive to family life. Children represent increasing financial burdens, and adults have less direct control over the economic potentialities of the family.[6]

Public health is better maintained in the city, medical services, hospitals, clinics, laboratories, doctors, nurses, and technicians are concentrated there.[7] Per capita expenditures for public health facilities are twice

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[5] Emil Durkheim, Le Suicide, Etude de Sociologie, (Paris, France: Alcan Press, 1897); and Paul Landis, Rural Life in Process (New York: McGraw-Hill Book Co., Inc., 1948), Table and text pp. 112-113.

[6] National Resources Committee, Our Cities, pp. 7-8 and Stuart A. Queen and David B. Carpenter, The American City (New York: McGraw-Hill Book Co., Inc., 1953), Tables 51, 52, and 53 and Text, pp. 261-263.

[7] By way of example see Homer L. Hitt and Alvin L. Bertrand, Social Aspects of Hospital Planning in Louisiana, (Louisiana Study Series, Number 1, Louisiana Agricultural Experiment Station, Baton Rouge, Louisiana, 1947).

those of the rural areas. In the same fashion private facilities and expenditures are greater. But epidemics, fires, traffic, and industrial accidents are also more frequent. And, a large proportion of the urban population resides in substandard housing in congested areas of the city not thought to be compatiable with good health. Despite and because of these factors urban fertility is less effectively used than rural fertility in as much as the rural-farm population has a greater longevity.[8] Rural infant mortality rates are less than urban infant mortality rates, although only slightly so. In the United States as a whole, cities of 100,000 or more population have lower infant mortality rates than does the rural population.[9]

Occupational variability is an essential characteristic of the city. There is a direct relationship between the proportion of professional workers to all employed and the size of the urban community. There is an inverse relationship between proportion of self employed and urban size. The working span of the urban worker is shorter than the rural worker. Incomes are higher but so are living costs. Living conditions are generally thought to be higher in the urban community although 20 per cent of all urban dwellings lack hot and cold running water, 15 per cent have

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[8] Louis I. Dublin, A. J. Lotka, and M. Spiegleman, Length of Life (Revised Edition; New York: The Ronald Press, 1949), Table 20, p. 73.

[9] Ibid., Table 20, p. 73.

no inside toilets, and 20 per cent have neither showers nor bathtubs.

The attempt has been to consider essential elements of the crowd and the press, the ambition of the people, and the economic complexity and inelasticity of urban life. Such a life finds little use or place for children. As stated by Thompson,

> The city as organized today is primarily a work and recreation place for the various adults. It is not organized to care for child life. Children are not of the essence of the city. The things done for them are afterthoughts and generally they are very badly done.[10]

Similar to public health, the educational facilities of the urban community exceed those of the rural community. School buildings, physical equipment, teaching and administrative personnel, programs and courses, and access to other educational agencies and media predominate in the urban community. Also the college and the university are generally found in the urban setting. The specialized schools, as those for defectives, are more common in the urban community. However, it is possible that student-teacher relationships are better developed in the rural areas where school size is minimized and where the teacher is better known in the community. The inference here is wide acquaintanceship with varying cultural ways including

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[10] Population Problems (third edition; New York; McGraw-Hill Book Company, 1942), p. 210.

the desirability, patterns, and techniques of birth control.

Recreational facilities are urban centered where they can draw upon larger masses of potential customers. The non-commercial cultural programs are also urban centered for the same reason. All types of voluntary organizations except those dealing specifically with agriculture are grouped in the urban community. They cater more to individuals than to family groups and more to adults than to children, and thereby encourage consideration of family planning and limitation.

Following MacIver's analysis the contrasts between urban and rural life can be drawn together in several basic points.[11] Rural life stresses a semi-isolated family life centering around agricultural activity, which is in itself a number of separate techniques and skills, and stressing a simple, uniform level and style of living. Rural solidarity is effected by sameness and common interests and social control is exercised largely in terms of personal family relationships. Urban life emphasizes specialization and competition between and among specialists. These enhance the prospects of social mobility and require formaliz-

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[11] Robert MacIver and Charles Page, Society (New York: Rinehart and Co., Inc., 1949), pp. 316-329.

ed, secondary control. Specialisation is carried to the extent that there are numerous "ways of life" within the "urban way of life". The resulting personality differences between urbanites and ruralites is illustrated in the former's absence of community sentiment and "we feeling".

In summary the urban community:

> stands in contrast to the country side with its forms of accentuation, intensification, or sophistication. The difference in the last resort is one of contrasting types of social organization, of the nature, kind, and number of social relationships to which the members of the two groups are exposed.[12]

With respect to fertility urban life deemphasizes children and family life in favor of the individual and a tremendous variety of social activity. The urban community represents small families and low fertility.

Urban Dominance

Early ecological studies of the community have emphasized the dominant position of the urban community in general and the metropolitan community in particular over the entire society. McKenzie, in his works, writes:

> By reducing the scale of local distance, the motor vehicle extended the horizon of the community and introduced a territorial division of labor among local institutions and neighboring centers which is unique in the history of settlement. The large center has been able to extend the radius of its influence; its popula-

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[12] Ibid., p. 329

> tion, and many of its institutions, freed from the dominance of rail transportation, have become widely dispersed throughout the surrounding territory. Moreover, formerly independent towns and villages and also rural territory have become part of this enlarged city complex. This new type of super community organized around a dominant focal point and comprising a multitude of differentiated centers of activity differs from the metropolitanism established by rail transportation in the complexity of its institutional division of labor and the mobility of the population. Its territorial scope is defined in terms of motor transportation and competition with other regions. Nor is this new type of metropolitan community confined to the large cities. It has become the communal unit of local relations throughout the entire nation.[13]

The tremendous spurt of urban growth is relatively recent, being traced largely from the 18th century. Its bases are the Agricultural Revolutions and the Industrial Revolution. The former embraces the introduction of science to agriculture in the improvement of animals, plants, and farming practices and the replacement of a peasant, subsistence farming economy by a capitalistic, exploitative farm economy.[14] These innovations liberated masses of farm people for employment in urban commerce and industry and provided sufficient increases in food for all of the peoples gathered into urban communities.

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[13] Roderick McKenzie, The Metropolitan Community (New York: McGraw Hill Book Company, 1933), p. 7.

[13] Roderick McKenzie, The Metropolitan Community (New York: McGraw Hill Book Company, 1933), p. 7.

[14] Harry E. Barnes, An Economic History of the Western World (New York: Harcourt, Brace and Company, 1942), pp. 247-253.

The Industrial Revolution provided the tremendous energy possibilities of water and steam. More and more elaborate machinery, sources of mechanical power, and numbers of personnel required to operate the machines led to larger and larger concentrations of people. At the same time science and industry provided the health and sanitation and the transportation and communication facilities required for large scale urban life. In this manner the modern urban community appears.[15]

The passing of time shows more and more ties binding the rural community to the urban. Each new technique of transportation and communication destroys the barriers of distance and prevents social isolation. All of the media of mass communication are centered in the urban community, particularly in the metropolis, and continually stress in stereotype the prevailing urban "way of life."[16] The city thus dominates the tastes of the society and instigates both fashion and fad. It is the source of the non-agricultural interest groups which are attractive to the ruralite and in which he attempts to participate.

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[15] Ibid., pp. 499-503.

[16] Bernard Berlson and P. Salter, "Majority and Minority Americans: An Analysis of Magazine Fiction," Readings in General Sociology (Robert O'Brien et. al., New York: Haughton Mifflin Co., 1951), pp. 254-261.

MacIver summarizes urban dominance:

> The city has the prestige of power and wealth and specialized knowledge. It holds the key to finance. It is the market to which the ruralite must turn to buy and sell and borrow. Its people habituated to many contacts, have the advantage, when city and country meet, of being more articulate, more expansive, and, superficially at least, more alert. The products the city sends to the country, unlike those it receives from it, carry with them something of the urban culture, of its way of life and technique. Consequently, in the intercourse of city and country, the former tends to dominate.[17]

Urbanization

The continuum of rural-urban difference is tending to break down under the prevailing urban dominance. The two ways of life are closely bound both technologically and culturally. Systems and rates of interaction are high. Urban dominance means the gradual diffusion of urban ways as the prestige attached to its products and modes of behavior cause them to be taken up rather than rejected by the rural people. In competitive life experiences the rural person is forced to adapt to the urban pattern or face eventual defeat.

This process of blending of urbanism and ruralism is termed urbanization. Sorokin defines it as the trend, "in which the specifically urban and rural traits are merging together, preserving the pluses of both and decreasing the

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[17] MacIver and Page, op. cit., p. 330

short comings of each of these agglomerations."[18]

Attention is called to the fact that the process is really a blend as the innumerable rural migrants to the urban community carry with them the cultural teachings of their former way of life. Also, the suburbanite is in close proximity to the rural environment. To emphasize this aspect the concept urbanization has been modified to rurbanization.

However there are observed areas in which inventions and modifications of technology and culture make their appearance in the city and gradually become diffused to the country. Rural areas are the repository of older traditions, customs, and behaviors. In the same way the older techniques of production, modes of dress, home appliances, and architecture are retained in the country while the urban community has gone on to new objects, materials, and behaviors. But as mentioned before the differences are being reduced.

Studies in urban and rural demography show the relationship existing between population characteristics and the prevailing social structure.[19] It can be inferred that as the

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[18] Pitirim Sorokin, Society, Culture, and Personality (New York: Harper and Brothers, 1947), p. 302

[19] Thompson, Population Problems, pp. 109-113, and Smith, The Sociology of Rural Life (Third edition; New York: Harper and Brothers, 1953), pp. 41-42.

process of urbanization continues, urban elements dominating, the demographic characteristics of the rural community will become increasingly those of the urban community. In a similar fashion the population dynamics of the urban community will gradually characterize the rural community.

Urbanism and Rural Fertility

It has been established that the urban community is characterized by low fertility, and that this is a phenomenon of long standing.[20] The totality of urban culture contains those attitudes and values conducive to the voluntary restriction of family size and the techniques for realizing this objective.[21] It has further been established that urbanism dominates ruralism and that through the process of urbanization rural culture patterns tend to modify in the direction of urban culture.[22]

It is, then, proposed that among the attitudes, values, and techniques passing from urban to rural culture are those concerned with the voluntary restriction of family size. Therefore it is proposed that the families of the white rural-farm population having the least contact with the urban community and its culture will have the highest fertility performance.

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[20] See this study pp. 1-5 and Tables I-V.

[21] See this study pp. 13-14 and 46-50

[22] See this study pp. 51-56

To test these propositions the fertility experience of the rural-farm people of each county will be related to various indexes of urbanism for each county. The strength of any observed relationship will be tested by correlation.

Methodology

The basic unit for which demographic data can be obtained is the county. All measures of fertility and consequently of urbanity must be based upon this unit. The possibilities and the limitations in the use of this unit have been discussed.[23]

Fertility was measured by the effective fertility ratio. The data required, computations used, uses, and limitations for this measure were discussed in Chapter One, pages 21-25. The data were broken down into the residential categories urban, rural-nonfarm, and rural-farm. These residences were defined in Chapter One, pages 20-21.

Measures of urbanity must be based upon or give insight to the previously defined characteristics in the rural-urban continuum. The immediate basic characteristic available is the extent or condition of the existing urban community. This one unit includes all urban characteristics having potential bearing upon fertility. As this study is not concerned with the specific urban element or

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[23] See this study pp. 42-43.

elements producing fertility variations, the unit is satisfactory.

Several indexes were developed from this characteristic. They were: size of largest urban community, total population of the county classified as urban, and the number of urban communities in the county. Each attempts to summarize the extent of the urban community. It is presumed that the more extensive the urban community the greater the opportunity for urban contact and urbanization on the part of rural-farm people, and the lower their fertility.

The indexes have basic weaknesses.[24] In each the assumption of equal access by all rural members of the community is not accurate. Further, the possible influence of an urban community beyond the border of its county is denied. All three indexes have the recognized demographic support of the relationship between the size of the urban community and urban fertility performance.[25]

All three indexes were computed from data supplied in the 1950 Census. The index, largest urban community in the county, was computed by listing every urban community by county and selecting the largest urban community in each. For this purpose Tables 33 and 37 of Volume II, Chapter B

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[24] For a criticism see T. Lynn Smith, Population Analysis (New York: McGraw-Hill Book Co., 1948), pp. 39-40.

[25] See this study pp. 1-5.

of the United States Census of Population: 1950 were used together with an atlas.[26] The counties were ranked by size of largest urban community. The results appear in columns 1, 2, and 3 of Table IX.

The index, total population classified as urban, was developed from Tables 42, 48, and 49 of Volume II, Chapter B of the United States Census of Population: 1950. These tables contain respectively data on total county population, county rural-nonfarm population, and county rural-farm population. From these, total urban populations for each county were obtained. Counties were then ranked by size of total urban population. Columns 1 and 2 in Table XI contain the results of this tabulation.

The index, number of urban communities per county, was derived from the same source, Tables 33 and 38. Together, these tables list all urban places. With the aid of an atlas these urban places were correctly located by counties. Then counties were ranked by the total number of urban places they contained. Within each unit of classification counties were arrayed alphabetically. The results appear in columns 1 and 2 of Table XII.

In an entirely separate operation a comprehensive set of effective fertility ratios was computed for the white

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[26] Rand McNally World Atlas: Readers Addition (New York: Rand, McNally and Co., 1951), pp. 96-97.

rural-farm, rural-nonfarm, and urban populations for each county. As these ratios will be used repeatedly in this study, they were not included in the text of this Chapter, but were placed in Appendix A as Table I, where they are readily available for reference from all sections of this study. In Appendix A, Table I is a synthesis of the effective fertility ratios for each white residence group. Appendix A, Table II contains the base computations of each residence group by county. Tables IX, XI, and XII were completed by the inclusion of the effective fertility ratios.

Analysis of the Data

Following the construction of each table, it was analysed in terms of the light it could throw upon the relationship existing between the fertility of the white rural-farm population and the degree of urbanism of this population. Guiding this analysis was the hypothesis proposing an inverse relationship between the fertility of the white rural-farm people and their degree of urbanity.

Table IX relates specifically to the influence of the size of the largest urban community in the county upon the fertility of the white rural-farm population. An inspection of the contents of the table itself did not uncover the existence of any such relationship. To render the analysis

Table IX: Relationship Between Counties Ranked by Size of Largest Urban Community and the Fertility of the White Rural-Farm Population[1]

Counties	Name of community	Size of community	Effective fertility ratios white rural-farm population
Allendale	None	-----	430.7
Barnwell	None	-----	598.2
Berkeley	None	-----	620.4
Calhoun	None	-----	457.9
Hampton	None	-----	596.8
Jasper	None	-----	489.8
McCormick	None	-----	479.6
Saluda	None	-----	503.4
Edgefield	Edgefield	2518	444.7
Clarendon	Manning	2775	706.0
Bamberg	Bamberg	2954	577.1
Lee	Bishopvillw	3076	548.8
Fairfield	Winnsboro	3267	457.0
Lexington	Cayce	3294	570.1
Dorchester	Summerville	3312	533.5
Oconee	Seneca	3649	602.2
Williamsburg	Kingstree	3664	685.7
Colleton	Walterboro	4616	463.5
Chesterfield	Cheraw	4836	659.1
Beaufort	Beaufort	5081	497.5
Marlboro	Bennettsville	5140	649.4
Dillon	Dillon	5171	684.4
Abbeville	Abbeville	5424	526.6
Georgetown	Georgetown	6004	716.5
Horry	Conway	6073	675.2
Pickens	Easley	6316	527.4
Darlington	Darlington	6619	606.1

Table IX (continued): Relationship Between Counties Ranked by Size of Largest Community and the Fertility of the White Rural-Farm Population[1]

Counties	Name of community	Size of community	Effective fertility ratios white rural-farm population
Marion	Marion	6834	641.4
Chester	Chester	6893	475.4
Kershaw	Camden	6986	605.6
Aiken	Aiken	7083	515.3
Lancaster	Lancaster	7159	543.2
Newberry	Newberry	7546	430.9
Cherokee	Gaffney	8123	528.3
Laurens	Laurens	8658	422.9
Union	Union	9730	432.6
Greenwood	Greenwood	13806	407.0
Orangeburg	Orangeburg	15322	560.5
Anderson	Anderson	19770	514.0
Sumter	Sumter	20185	657.7
Florence	Florence	22513	667.6
York	Rock Hill	24502	537.8
Spartanburg	Spartanburg	36795	472.9
Greenville	Greenville	58161	430.1
Charleston	Charleston	70174	502.6
Richland	Columbia	86914	435.1

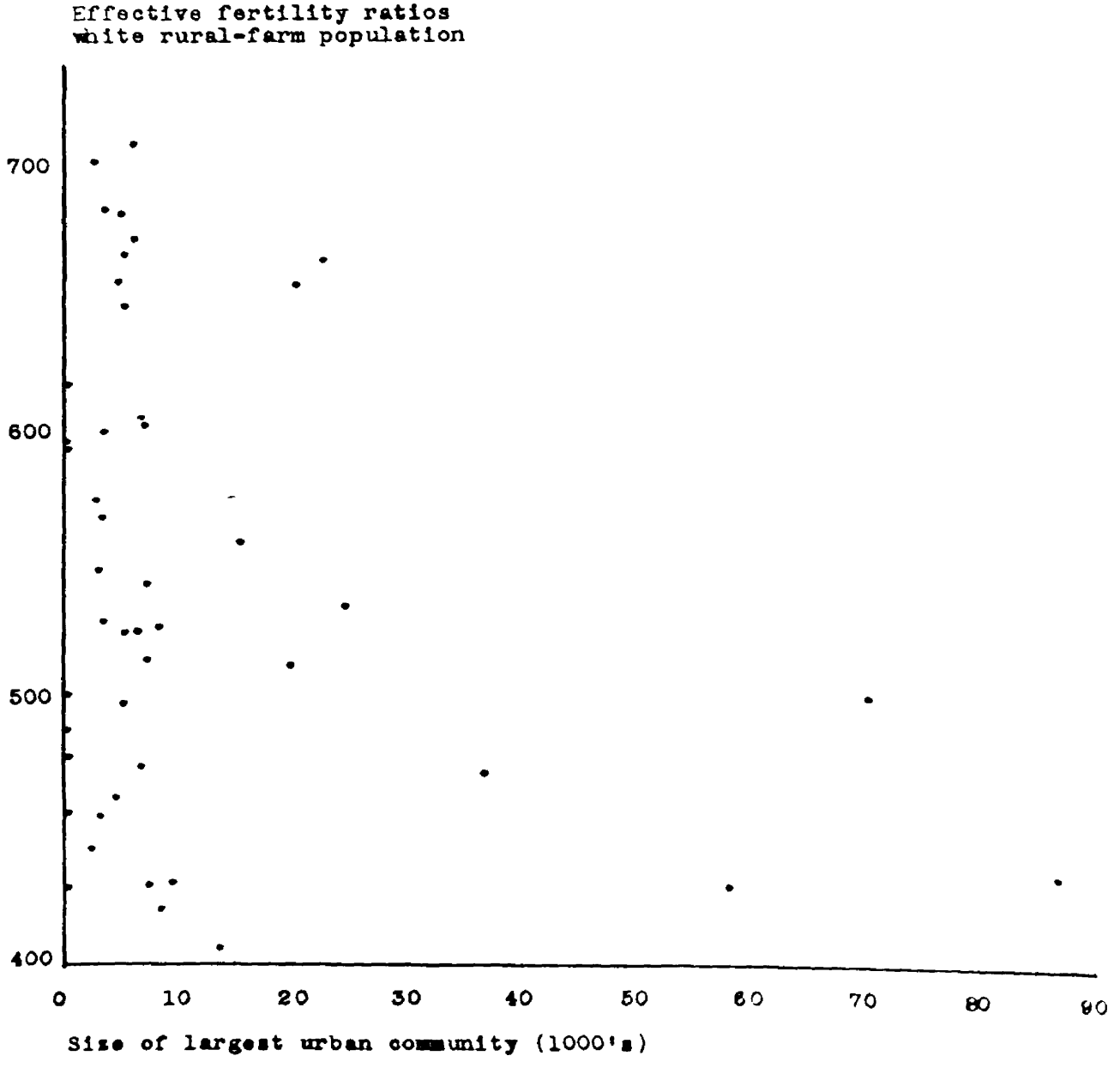
1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 33 and 38; and Table I, Appendix A.

clearer a scatter diagram of the data was constructed. This appears as Figure 1. A perusal of this diagram makes it abundantly clear that a relationship does not exist in so far as it is measured by this particular index. Positions within the figure indicate a prevailing low fertility ratio for the white rural-farm populations within those counties having a relatively large urban community. But there is no clear relationship existent in those counties having small urban communities.

The possible influence of the metropolis can be observed. There are three such areas. Ranked by size of population these are Greenville, Charleston, and Richland (containing Columbia City) Counties. These three possess fertility ratios of 430.1, 502.6, and 435.1. However, final affirmation can not be given as the much less urban Greenwood, Laurens, and Newberry Counties, and the completely rural Allendale County, have equally low fertilities.

Immediately several propositions appear to mind. One, the ambiguity associated with the basic unit of the data. Two, some further socio-cultural distinction within the rural population. Three, if the communities between 2,500 and 10,000 in population were telescoped and their white rural-farm fertility computed as a single fertility, the performance would be superior to those of white rural-farm residents in counties having larger urban communities. Has

Figure 1: Relationship Between Counties Ranked by Size of Largest Urban Community and the Fertility of the White Rural-Farm Population



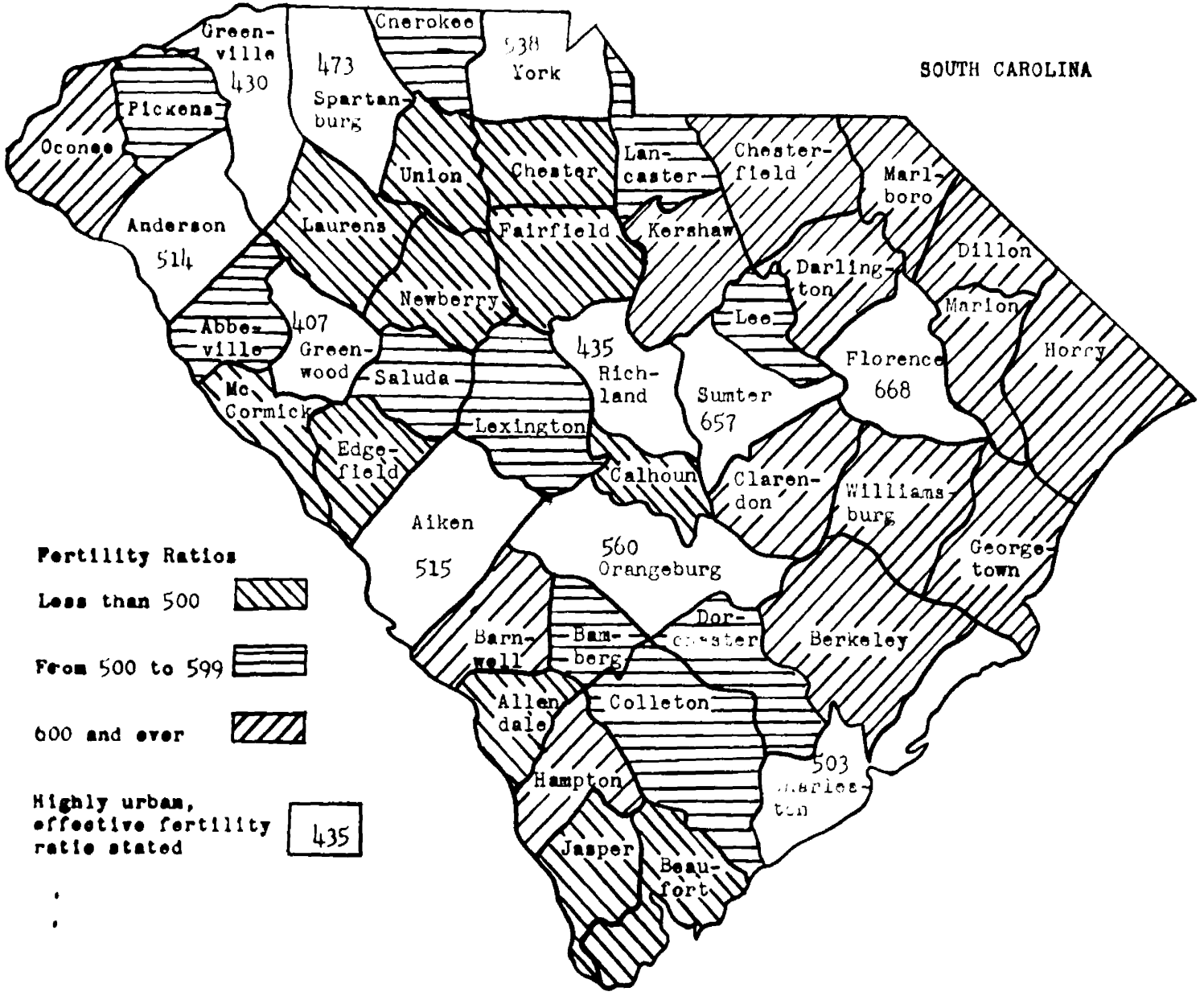
this been a practice in other studies? And, thinking in the opposite direction, if there were more communities in the larger categories, would the spread exhibited by the small categories be found there as well?

At this time of analysis the problem of an inadequate basic unit must await the analysis of the other indexes. Consideration can be given to the possibility of the influence of other socio-cultural characteristics. Figure 2 graphically portrays the fertility performance by county of those white rural populations in counties whose largest urban communities do not exceed 10,000 people. The fertility ratios of the white rural-farm people in the metropolitan counties and other counties having large urban centers are recorded within the boundaries of their respective counties.

Several patterns are immediately noticeable. In the northeastern counties bordering the coast and North Carolina the white rural-farm populations are characterized by high rates of fertility. In this same grouping Florence county, having the sixth largest urban community, has the very high fertility ratio of 668.

In the lower southeastern corner of the state all of those counties surrounding Charleston County, with the exception of Berkeley County have depressed fertility ratios. In this same corner those South Carolina counties bordering

Figure 2: Fertility Ratios White Rural-Farm Population by County



the Savannah River and the Savannah Metropolitan Area also show depressed fertility ratios. Hampton County is the only exception.

Using central Richland County as the pivotal point for the Piedmont region, the counties immediately above and to the left show low fertility ratios. Those to the immediate left show moderate ratios.

In the far Piedmont counties low ratios are found in metropolitan Greenville County and highly urbanized Spartanburg County and moderate ratios in the bordering counties. In Oconee County, the mountain county, the ratio reverses to a high one.

It must be remembered that these counties have small urban communities, none having an urban community over 10,000 in population. Perhaps some influence comes from neighboring metropolitan counties. Thus the depressed rates in counties surrounding Richland, Charleston, and Greenville Counties.[27] Yet this is not a constant factor. Non-contiguous counties also demonstrate depressed fertility ratios. For example, the non-contiguous Newberry County shows a lower ratio than does Lexington County which borders on Richland, the Metropolitan county. Kershaw county which

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[27] Aiken County, with a moderate fertility is included in the Augusta County, Georgia, metropolitan area.

borders Richland County shows a high fertility ratio. The earlier proposition of metropolitan influence is now completely denied.

Previously quoted studies by the National Resources Committee and by Warren Thompson used abridged classes in grouping urban communities by size.[28] It was suggested that such a practice in this study would sufficiently generalize the units so as to demonstrate the expected relationship between size of urban community and the fertility of the white rural-farm population. This procedure is undertaken in Table X. The expected relationship does not appear. Indeed, those counties having no urban population have a lower fertility than all but the largest size urban groupings.

Insofar as the index, size of largest urban community, is a satisfactory measure of urban influence; urbanism and urbanization are not equal factors in reducing the fertility of white rural-farm people.

Other than this, some entirely different explanation must be determined. Immediately noticeable from the data in Figure 2 is the regional variation which divides the Coast Plain from the Piedmont. In socio-cultural terms the difference lies agriculturally in distinct type of farming

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[28] See this study. Tables II and IV.

Table X: Relationship Between Counties Grouped for Size of Largest Urban Community and the Fertility of the White Rural-Farm Population[1]

Size of largest urban community	Effective fertility ratios white rural-farm population
No urban community	522.1
2,500 to 9,999	561.7
10,000 to 24,999	557.4
25,000 and over	460.2

1. Condensed from Table IX.

areas, and industrially in the absence of industry in the Coast Plain and the presence of a thriving textile industry in the Piedmont.

These both present profitable lines of inquiry. Their pursuit must, however, await further consideration of the other proposed indexes of urbanism.

Table XI, appearing below, relates specifically to the relationship between the fertility experience of white rural-farm people and the size of the urban population of the county. An inspection of the data presented in the table indicates that the proposed relationship does not exist in so far as it is measured by this particular index. To render the analysis easier the data were plotted in Figure 3. No relationship is discernable. There is great variability among those counties having a small total urban population. No appreciable decline is seen in those counties having a large urban population. If the class intervals from 0 to 20,000 were telescoped the r esulting average fertility would not appreciably alter the picture.

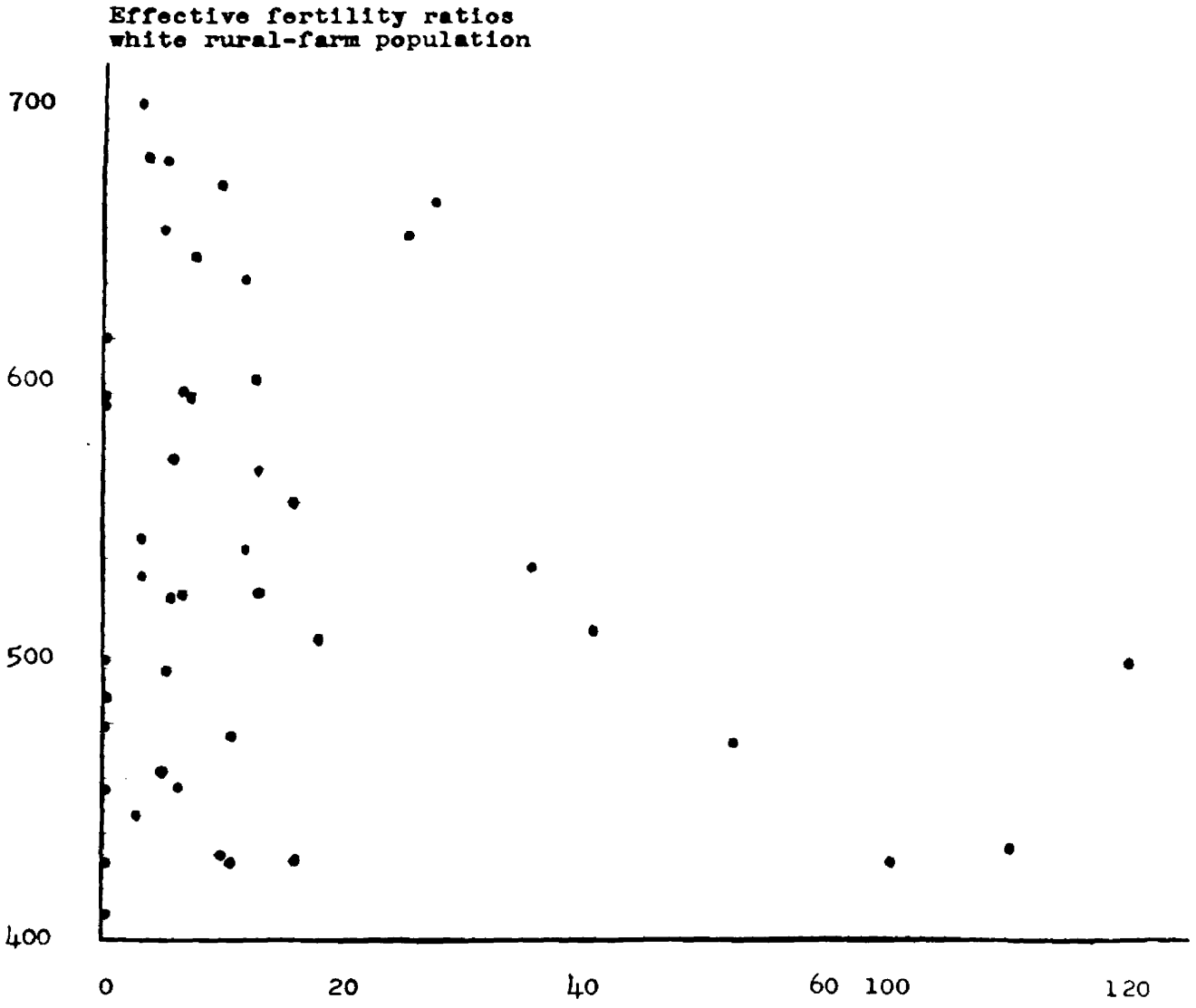
This second index is very closely related to the first as South Carolina is not highly urban and congested, and the largest urban community is likely to dominate the total size of urban population. The inference drawn from this table supports that from the first table; the fertility of the white rural-farm population is not related to urbanism

Table XI: Relationship Between Counties Ranked by Total Population Classified as Urban and the Fertility of the White Rural-Farm Population[1]

Counties	Total urban population	Effective fertility ratios white rural-farm population	Counties	Total urban population	Effective fertility ratios white rural-farm population
Allendale	0	430.7	Marlboro	7828	649.4
Barnwell	0	598.2	Horry	9418	675.2
Berkeley	0	620.4	Union	9730	432.6
Calhoun	0	457.9	Chester	10426	475.4
Hampton	0	596.8	Newberry	10552	430.9
Jasper	0	489.8	Lancaster	11472	543.2
McCormick	0	479.6	Marion	11750	641.4
Saluda	0	503.4	Darlington	12277	606.1
Edgefield	2518	444.7	Cherokee	12412	528.3
Clarendon	2775	706.0	Lexington	13063	570.1
Lee	3076	548.8	Georgetown	13733	716.5
Dorchester	3312	533.5	Orangeburg	15322	560.5
Williamsburg	3664	685.7	Laurens	15826	422.9
Colleton	4616	463.5	Aiken	17800	515.3
Chesterfield	4836	659.1	Greenwood	20550	407.0
Beaufort	5081	497.5	Sumter	26031	657.7
Dillon	5171	684.4	Florence	27625	667.6
Abbeville	5424	526.6	York	35163	537.8
Bamberg	5768	577.1	Anderson	40521	514.0
Fairfield	6203	457.0	Spartanburg	52039	472.9
Pickens	6316	527.4	Greenville	100699	430.1
Oconee	6753	602.2	Richland	110688	435.1
Kershaw	6986	605.6	Charleston	120289	502.6

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 42, 48, and 49; and Table I, Appendix A.

Figure 3: Relationship Between Counties Ranked by Total Urban Population and the Fertility of the White Rural-Farm Population



as a total phenomenon. The previously stated propositions covering possible reasons for the failure of this relationship appear to hold also for this index and table.

A criticism of the first index is the assumption made that the total population of the county had equal access to the urban community. This need not be so. The second index may also be subject to this criticism as the bulk of the urban population may be, and in fact frequently is, located in one urban community. A fundamental proposition of the above analysis is that urbanization is related to the opportunity to contact the urban environment. These opportunities may in part be associated with the number of urban communities available for contact. Table XII takes this into account by classifying counties on the basis of the number of urban communities which they contain and associating the fertility ratios of the white rural-farm population with this ranking. However, an analysis of the data shows that no relationship exists. There is great variability between the fertility of the rural populations in those counties having two, one, and no urban communities. Both counties having four urban communities do have a low fertility. Average fertility ratios for each class show no variability. The ratio for the all-rural class is actually 15 points lower than that of the class of two urban communities.

It is possible that the index, total urban population,

Table XII: Relationship Between Counties Ranked by the Number of Urban Communities and the Fertility of the White Rural-Farm Population[1]

Counties	Number of urban communities	Effective fertility ratios white rural-farm population	Averaged fertility ratios for groups of counties[3]
Aiken	4	515.3	510.0
Anderson	4	514.0	
Spartanburg	3	472.9	
York	3	537.8	
Bamberg	2	577.1	552.3
Cherokee	2	528.2	
Chester	2	475.4	
Darlington	2	606.1	
Georgetown	2	716.5	
Greenville	2	430.1	
Greenwood	2	407.0	
Horry	2	675.2	
Laurens	2	422.9	
Lexington	2	570.1	
Marion	2	641.4	
Marlboro	2	649.4	
Newberry	2	430.9	
Oconee	2	602.2	
Abbeville	1	526.6	551.2
Beaufort	1	497.5	
Charleston	1	502.6	
Chesterfield	1	659.1	
Clarendon	1	706.0	
Colleton	1	463.5	
Dillon	1	684.4	
Dorchester	1	533.5	
Edgefield	1	444.7	
Fairfield	1	457.0	
Florence	1	667.6	
Kershaw	1	605.6	

Table XII (continued): Relationship Between Counties Ranked by the Number of Urban Communities and the Fertility of the White Rural-Farm Population[1]

Counties	Number of urban communities	Effective fertility ratios white rural-farm population	Averaged fertility ratios for groups of counties[2]
Lancaster	1	543.2	
Lee	1	548.8	
Orangeburg	1	560.5	
Pickens	1	527.4	
Richland	1	435.1	
Sumter	1	657.7	
Union	1	432.6	
Williamsburg	1	685.7	
Allendale	0	430.7	537.2
Barnwell	0	598.2	
Berkeley	0	620.4	
Calhoun	0	457.9	
Hampton	0	596.8	
Jasper	0	489.8	
McCormick	0	479.6	
Saluda	0	503.4	

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 33 and 38; and Table I, Appendix A.

2. An average of the county averages.

obscures the degree of domination of the urban population in counties of relatively small total populations and over-emphasizes it in counties with large populations. In addition, there might possibly be a few counties in which urban residence is primarily a characteristic of the Negroes. An index of per cent of total white population classified as urban would avoid these difficulties. This index is used in Table XIII. The counties are ranked in column one, the per cent of white population classified as urban in column two, and the effective fertility ratios of the white rural-farm population in column three.

No relationship between the two characteristics is observable. Non-urban counties show wide fluctuation in fertility. The same degree of scatter is largely maintained in other sections of the table. No pattern is to be found for the table as a whole or any of its parts. No evidence is available from this table and index to support the proposition that the fertility of the white rural-farm population is inversely related to that population's degree of urbanization.

Generalizing on the basis of five tables is not without its danger. The expected relationship did not appear. On the face of the data the mere presence of urban communities or urban populations does not lead to reduced fertility on the part of the white rural-farm population.

Table XIII: Relationship Between Per Cent of White Population Classified as Urban and the Fertility of the White Rural-Farm Population[1]

Counties	Per cent of white population classified as urban	Effective fertility ratios white rural-farm population	Counties	Per cent of white population classified as urban	Effective fertility ratios white rural-farm population
Allendale	0	430.7	Darlington	24.5	606.1
Barnwell	0	598.2	Marlboro	24.6	649.4
Berkeley	0	620.4	Fairfield	28.5	457.0
Calhoun	0	457.9	Lexington	29.5	570.1
Hampton	0	596.8	Lancaster	30.9	543.2
Jasper	0	489.8	Union	31.0	432.6
McCormick	0	479.6	Bamberg	32.9	577.1
Saluda	0	503.4	Newberry	33.2	430.9
Williamsburg	8.4	685.7	Aiken	33.5	515.3
Clarendon	8.6	706.6	Laurens	33.7	422.9
Chesterfield	13.3	659.1	Chester	34.0	475.4
Lee	13.3	548.8	Florence	34.6	667.6
Dorchester	14.6	533.5	Spartanburg	34.6	472.9
Edgefield	15.2	444.7	Cherokee	35.5	528.3
Horry	15.7	675.2	Marion	35.5	641.4
Pickens	15.8	527.4	Georgetown	43.2	716.5
Colleton	16.3	463.5	Anderson	44.7	514.0
Dillon	16.7	684.4	Sumter	45.1	657.7
Oconee	17.3	602.2	York	49.1	537.8
Beaufort	18.8	497.5	Greenwood	49.4	407.0
Kershaw	21.6	605.6	Greenville	59.9	430.1
Orangeburg	22.3	560.5	Charleston	73.0	502.6
Abbeville	24.2	526.6	Richland	77.6	435.1

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 42, 48, and 49; and Table I, Appendix A.

Four explanations are possible:

I. Previous studies of fertility by consolidating materials over large social areas have ignored local variations.

II. The dynamics of fertility have been altered and older generalizations no longer hold.

III. South Carolina is atypical.

IV. The causal factor is not urbanism as such but specific characteristics of urbanism not present in effective degree in South Carolina urban communities or not effectively controlled in the above criteria.

The first proposition is not substantiated in the study of the five tables. Consolidating the data by telescoping class intervals of the tables or gauging the net effect of such a maneuver does not modify the results obtained in the extended tables. No tangible evidence can be quoted to support this thesis. Nevertheless, the work so far done in this study does emphasize the complexity of fertility variability. It appears that any measure or analysis designed for broad insight or generalization is subject to criticism. In any case, their predictive value would be reduced and, as a result, the value of retaining them as generalizations would be reduced.

Number two must await other fertility studies, as well as the evaluation of the complete results of the study.

Number three can be eliminated. Exceptions do not prove the rule.

Number four presents the most logical area of continued analysis in this study.

All discussions of fertility variation take note of underlying economic factors. Urban economy militates against children, particularly a large number of children. The rural economy does not. The economic activity of the urban family with its atomization of family life rules against children. The rural production unit is familial and incorporates children. Urban struggles for higher socio-economic status result in few children. Rural status systems are not so urgent nor so sharply defined.

Therefore, a profitable line of analysis is the study of the degree to which rural areas showing depressed fertility ratios have an urban economy and the degree to which rural areas having inflated fertility ratios have an agricultural economy. These factors will be taken up in Chapter Three.

Before this in undertaken, a corollary to proposition four should also be examined. If there are specific aspects of urbanism which are associated with reduced fertility, can it be assumed that there are specific aspects of rurality which are to be associated with high fertility?

Granted specific characteristics of rurality, are there

any such characteristics which will not be inherent in the proposed consideration of the transposition of the rural-farm people to an urban economy?

Rurality as a concept goes beyond the practice of agriculture.[29] Semi-isolated family life is also a basic characteristic. The existence of isolation and its impact upon social life is a source of continued interest and speculation to the sociologist.[30] Rural isolation and its relationship to high fertility practices has been noted.[31] Is this isolated farm family characterized by strong intra-family bonds among which is the desire for a large family? While the strength of family bonds cannot be tested, the tendency towards larger family size among isolated rural families can.

Isolation may in part be measured by the density of the rural-farm population. This will indicate the opportunity to make contact with others. It would not consider topographical and social barriers. It would also consider each county to be a sealed unit with no inter-county contacts. While possessing these deficiencies, it is the best measure available.

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[29] See this study, pp. 15-21.

[30] See Smith, The Sociology of Rural Life, pp. 120-125.

[31] See this study, p. 9.

As the problem under investigation concerns the isolation of family units, it was decided not to use the total white rural-farm population. Average family size was not known. The work so far accomplished in this study indicates county variability in fertility, so a standard family size could not be used. Therefore, an attempt was made to obtain a count of the heads of families. It was proposed that the Census enumeration of the total number employed in agriculture would constitute such a count. Farm workers are primarily male and unless living at home with their parents are most generally married. There would in all likelihood be a strong positive relationship between the number employed in agriculture and the number of farm families.

Charleston, Greenville, and Richland counties, all metropolitan districts, were excluded from the study on the grounds that their metropolitan characteristics would carry to all farm units. Moreover, the clustering of small vegetable farms, in the immediate environs of the central cities would distort any measure of density.

Data on the land area of the counties were obtained from the Merriam Webster Geographical Dictionary.[32] Data on the white rural-farm working population were obtained

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[32] Merriam Webster, Webster's Geographical Dictionary, (Springfield, Massachusetts, 1949), p. 1064.

from the 1950 Census of Population.[33]

These data arranged for the analysis of the relationship between the density of the white rural-farm families and the fertility of the white rural-farm population are presented in Table XIV. Column one contains the counties, column two the density of farm workers (number of farm workers per square mile), and column three, the fertility performance of the white rural-farm population.

Visual inspection is sufficient to show that a relationship exists between the two variables. However, it is not in the expected direction. The data indicate that as the density of the farm families increases their fertility experience rises. Counties with one and a fraction to less than one family per square mile show fertilities which are lower than those of families in higher densities. The progression appears to be regular and continuous with strong scatter.

Correlation was used to determine the strength of the relationship. A moderate relationship of 0.51 was registered. The expected strong scatter was authenticated with a coefficient of alienation of 0.74. The weakness of the relationship can be most adequately accounted for by the poor

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[33] Bureau of the Census, United States Census of Population: 1950, Volume II, "Characteristics of the Population," Part 40, South Carolina, Chapter B (Government Printing Office, Washington, D. C., 1952), Tables 43 and 44

Table XLV: Relationship Between Density of the White Farm Worker Population and the Fertility of the White Rural-Farm Population by County[1]

Counties	Number of white farm workers per square mile	Effective fertility ratios white rural-farm population	Counties	Number of white farm workers per square mile	Effective fertility ratios white rural-farm population
Beaufort	0.29	497.5	Abbeville	1.60	526.6
Jasper	0.39	489.8	Newberry	1.68	430.9
McCormick	0.43	479.6	Laurens	1.74	422.9
Fairfield	0.45	457.0	Lancaster	1.75	543.2
Charleston	0.56	502.6	Williamsburg	2.02	685.7
Berkeley	0.59	620.4	York	2.06	537.8
Allendale	0.64	430.7	Orangeburg	2.15	560.8
Georgetown	0.79	716.5	Lee	2.24	548.8
Richland	1.00	435.1	Saluda	2.59	503.4
Hampton	1.01	596.8	Marlboro	2.68	649.4
Union	1.05	432.6	Lexington	2.72	570.1
Chester	1.12	475.4	Marion	2.98	641.4
Greenwood	1.14	407.0	Chesterfield	2.99	659.1
Calhoun	1.20	457.9	Oconee	3.09	602.2
Edgefield	1.22	444.7	Greenville	3.32	430.1
Aiken	1.25	515.3	Darlington	3.40	606.1
Sumter	1.27	657.7	Cherokee	3.60	528.3
Colleton	1.28	463.5	Pickens	3.67	527.4
Dorchester	1.30	533.5	Anderson	4.04	514.0
Kershaw	1.37	605.6	Spartanburg	4.44	472.9
Clarendon	1.52	706.0	Dillon	4.56	684.4
Barnwell	1.55	598.2	Florence	4.95	667.6
Bamberg	1.56	577.1	Horry	5.17	675.2

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 43 and 44; Table I, Appendix A; and Webster's Geographical Dictionary (Springfield, Massachusetts: Merriam-Webster Co., 1949).

measure of socio-cultural isolation.

On the face of the evidence socio-cultural isolation of the white rural-farm family is not directly related to high fertility of the white rural-farm family. The opposite relationship exists. This was counter to expectations. Before accepting the findings as final, the adequacy of the measure must be determined. The results actually lend themselves to a completely different explanation. The number of farms indicates the size of the farms. Small farms in cotton, tobacco, orchard, and general farming areas can mean reduced income and a low level of living. This is associated with high fertility. Therefore, the above index may be measuring socio-economic status as well as isolation. In a different view, small farms and their low economic returns may mean part-time farming enterprises. A man working in industry or business could not expect to work more than a small farm. Small farms may then indicate a partial urban economy. Final conclusions on the interpretation of these data must await the independent consideration of these two potential explanations.

Summary

In this chapter the proposed relationship between urbanism and the fertility of the white rural-farm population was investigated. The relationship was proposed on the basis of a known inverse relationship between urban fertility and

and size of community and between urban and rural fertility. Motivations were traced to reduced family functions, increased outside interests, and heightened economic burdens for the urban community family. In the face of known urban dominance and urban to rural cultural diffusion, it was proposed that the fertility of the white rural-farm population would decline as the population came increasingly under the domination of urban community life.

As direct evidences of urban pursuits on the part of the white rural-farm population were not available, indexes measuring the potentiality of urban contacts were constructed. These included:

I. Size of the largest urban community in the county.
II. Total population classified as urban.
III. Number of urban communities.
IV. Percent of population classified as urban.
V. Density of the farm-worker population.

No relationship was uncovered by the use of the first four indexes. On the face of the data, the mere presence of urban communities or urban populations does not lead to reduced fertility on the part of the white rural-farm populations.

Index five was originally introduced in a proposed direct relationship between white rural-farm fertility and white rural-farm isolation. However, a moderate inverse

relationship with a correlation value of 0.51 was found. Fertility was highest in the most densely populated farm land areas. Thus, the idea of urban influence as a general thing was abandoned. Realistically, rural fertility exceeds urban fertility, and while both have been declining urban fertility was the first to begin and is the leader. Therefore, it must be some aspect of urban culture not sufficiently accounted for in general indexes of urban contact. A potential clue is the direct relation established between density of farm population and white rural-farm fertility. The inference obtained suggests socio-economic status and part-time farming as the possible basic factor related to high fertility on the part of the white rural-farm population.

CHAPTER THREE

THE PRACTICE OF AN URBAN ECONOMY RELATED TO THE FERTILITY OF THE WHITE RURAL-FARM POPULATION

The Agricultural Economy

The United States is predominantly a land of commercial agriculture, a non-subsistence farming system in which crops and stock are raised for cash sale by individual entrepreneurs.[1] Although it is generally considered to have originated during the Civil War period, early forms can be traced to the first tobacco farming enterprises in the southern colonies.[2]

The system while treated as a separate entity is closely bound up with the total economy and is subject to the price, market, and credit conditions of the latter. Indeed the, "financial, foreign, and taxation policies of the United States were designed to assist the commercial, manufacturing, banking, and speculating groups."[3]

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[1] See Charles Loomis and J. Allan Beegle, Rural Social Systems (New York: Prentice Hall, Inc., 1950), pp. 315-339; and Lowry Nelson, Rural Sociology (American Book Co., 1948), p. 261.

[2] James Barnes, Wealth of the American People (New York: Prentice-Hall, Inc., 1949), pp. 52-54.

[3] Benjamin Kendrick, "Agrarian Movement in the United States," Encyclopedia of the Social Sciences, Volume 1, p. 509.

The agricultural system in South Carolina centers around the cash crop of cotton.[4] The present farm tenure system employing large numbers of wage workers and share croppers is an outgrowth of the earlier single crop slavery system.[5] The present system compels large numbers of the farm tenant population to live at a very low level of living and to assume a precarious economic position.[6] The seasonal variations in work patterns result in slack periods requiring little time on the farm.[7]

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[4] Ida J. White, Economic Impact of the War Upon Agriculture in the Fifth Federal Reserve District (Federal Reserve Bank of Richmond, Richmond, Virginia), Appendix Table 7, "Cash Farm Income in South Carolina by Commodities, 1939-1943," p. 61; and J. L. Fulmer, Types of Farming and Farm Business Studies in South Carolina, Agricultural Experiment Station, Bulletin 31, Clemson, South Carolina, 1937, pp. 25-27.

[5] Barnes, op. cit. Ch. 3; and T. J. Woofter and A. E. Fisher, The Plantation South Today (Works Progress Administration, Social Problems Series Number 5, Government Printing Office, Washington, D. C., 1940), pp. 3-4.

[6] Woofter and Fisher, Ibid., pp. 11-18; and T. J. Woofter, et. al., Landlord and Tenant on the Cotton Plantation (Works Progress Administration, Research Monograph 5, Government Printing Office, Washington, D. C., 1936), Ch. 7, "Tenant's Standard of Living"; and Charles S. Johnson, E. R. Embree, and W. W. Alexander, The Collapse of Cotton Tenancy (Chapel Hill, North Carolina: The University of North Carolina Press, 1935), pp. 11-23, and 36-45.

[7] Arthur F. Raper, "The Cotton Belt," Rural Life in the United States (Carl C. Taylor, editor; New York: Alfred A. Knopf, 1949), pp. 351-352.

The consequence of this system is the seeking and obtaining of off-farm employment by larger and larger proportions of the rural-farm population.[8] "The increase of part-time farming in various parts of the country is reducing status demarcations by permitting more farm people to increase their incomes and improve their dwellings."[9] In turn their economic and family life patterns become more and more conditioned by the urban-industrial economy into which they have partially passed. As reported by R. H. Allen and associates, the part-time farmers socio-economic position is altered as follows:

1) It is economically advantageous to the farmer
2) The farm is small, requires small capital outlay, and does not by itself make the family economically self-sufficient.
3) Suburban or open country residence is required.
4) Modern conveniences are less frequently available than to the industrial worker.

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[8] Louis J. Ducoff and M. J. Hagood, "Occupational Patterns in Rural Population," Rural Life in the United States, op. cit., pp. 249-250, and Table 38, p. 250; and R. H. Allen, et. al., Part-Time Farming in the South East (Works Progress Administration, Research Monograph 9, Government Printing Office, Washington, D. C., 1937), pp. xvi-xviii.

[9] Arthur F. Raper, "Rural Social Differentials," Rural Life in the United States, op. cit., p. 325.

5) Home ownership is more common than among industrial workers.

6) Families more frequently participated in organized community affairs than do industrial families.

7) Positions of leadership are more frequently held than by industrial workers.

8) Higher social status is obtained.

9) Part-time farming is dependent upon the system of the industrial economy; urban jobs must be available and must permit three to five and one half hours of farm work per day.[10]

A study made in North Carolina in 1947 reports the same economic advantages, but stresses the economic loss sustained by cotton and tobacco farmers when their off-farm work forces reduced acreage of their principal cash crop.[11]

It must be remembered that the practice of part-time farming or extensive gardening when it occurs around a large urban center frequently concerns city dwellers who

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[10] Allen, et. al., op. cit; pp. xxxiii-xxxviii.

[11] Francis E. McVay, Factory Meets Farm in North Carolina, North Carolina Agricultural Experiment Station Technical Bulletin 83, Raleigh, North Carolina, 1947, pp. 8-15.

have moved in or who have succumbed to urban influences.[12] In a sense this distinguishes week-end farmers from regular farmers as well as the socialization background of the persons concerned.

Estimates of future agricultural conditions for the Southeast indicate reduced cotton acreage, increased mechanization, increased yields, and larger urban populations.[13] These factors will not only produce out-migration of the farm population but also larger scale part-time farming. Larger urban communities will foster this through the suburbanization process and greater demands for dairy, poultry, and truck garden products.

The Urban Economy and Rural-Farm Fertility

What has been and will be the affect of this economic shift upon the fertility of the white rural-farm population? The crux of the lowered urban fertility is presumed to be the urban economy. Logically the fertility of the rural-farm families should diminish as these families shift to an urban economy. At the same time working in an urban environ-

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[12] Nathan Whetten and E. Devereaux, Jr., Studies in Suburbanization in Connecticut, Connecticut Agricultural Experiment Station, Bulletin 212, Storrs, Connecticut, 1936, Figure 10, p. 41.

[13] John L. Fulmer, Agricultural Progress in the Cotton Belt Since 1920 (Chapel Hill, North Carolina: University of North Carolina Press, 1950), pp. 170-176.

ment will mean increased exposure to urban values, norms, and techniques.

It is proposed that the fertility of the white rural-farm population will vary inversely with this population's practice of a part-time farming economy.

Methodology

Effective fertility ratios have been computed previously for the white rural-farm population of each county. These computations are found in Appendix A, Table I.

Counties will be ranked in terms of indexes of part-time farming economy and such rankings will be compared with a ranking by effective fertility ratios. The strength of resulting relationships will be measured by correlation.

The following were selected as indexes of part-time farming:

I. Per cent of employed population in agriculture.

II. Per cent of farm operators working off their farms 100 days or more in 1949.

III. Per cent of all farms classified as part-time farms.

Index one gives insight into the degree to which agriculture is practiced in a given county. Ranking of counties on this basis leads to greater and greater degrees of rurality. It shows the degree to which urban communities and

employment prospects are available to the rural-farm population. The previously quoted work by R. H. Allen and his associates indicates that availability of urban employment is directly related to part-time farming.[14]

Index two turns directly to the actual off-farm employment record. "Off-farm" employment as used in the Census of Agriculture: 1950 means any work done for wages or pay by a farm operator off of his own farm. In addition to industrial labor it may include working on another man's farm. However, figures are available for off-farm work of 100 days or more. Some students maintain this will exclude virtually all of the latter.[15] It is, however, impossible to determine which farm operators are farmers first and urban workers second and which are "week-end farmers."

Index three bolsters the insight gained in index two. By definition a part-time farm is any farm with a sale of products of from $250 to $1199 whose operator worked off of the farm 100 days or more a year or whose operator's non-farm income exceeded that obtained from the sale of farm products.[16] It is thus more inclusive than index two.

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[14] Allen, et. al., op. cit., p. xxxviii.

[15] Ducoff and Hagood, op. cit., p. 250.

[16] U. S. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, "Counties and State Economic Areas," Part 16, North and South Carolina (Government Printing Office, Washington, D. C., 1952), p. xix.

Indexes one, two and three were obtained respectively from Tables 43, 1, and 7 of the United States Census of Agriculture: 1950, Volume I, Part 16, Chapter B.

Analysis of the Data

Table XV presents the index, per cent of employed population in agriculture. Column one contains the counties ranked in an ascending order of agricultural economy. Column two shows the per cent of employed persons in agriculture for the county. The data deal with agriculture as an industrial group. By census definition an industrial group is more comprehensive than a classification of farm operators and tenants. It also includes the agricultural laborer and all other persons who are employed on a farming enterprise. Thus a truck driver is placed in the agricultural industrial group if his regular employer is a farm operator. Column three contains the effective fertility ratios of the white rural-farm people of the counties.

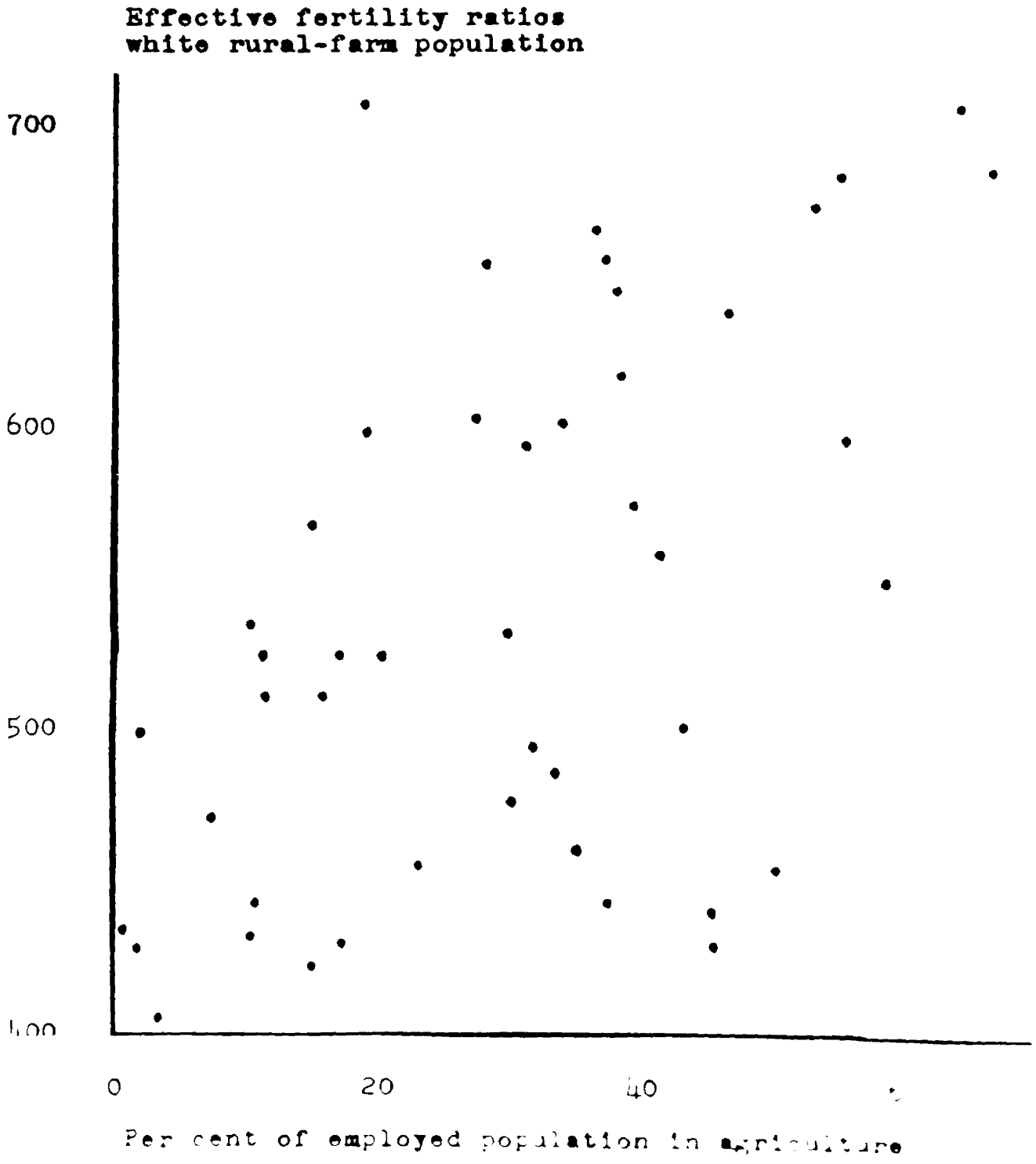
To facilitate analysis, Figure 4 (a scatter diagram of columns two and three) was plotted. A relationship was immediately observable. It is a direct one with an increase in the per cent employed in agriculture being accompanied by a rise in fertility. If a ruler is held perpendicular to the horizontal axis and gradually moved away from the vertical axis it can be demonstrated the relationship is fairly consistent throughout and is not spuriously

Table XV: Relationship Between Per Cent Employed Population in Agriculture and the Fertility of the White Rural-Farm Population by County[1]

Counties	Per cent of employed in agriculture	Effective fertility ratios white rural-farm population	Counties	Per cent of employed in agriculture	Effective fertility ratios white rural-farm population
Richland	5.9	435.1	McCormick	35.5	479.6
Charleston	6.8	502.6	Hampton	36.6	596.8
Greenville	7.0	430.1	Beaufort	37.0	497.5
Greenwood	8.6	407.0	Jasper	38.7	489.8
Spartanburg	12.3	472.9	Darlington	39.3	606.1
York	15.2	537.8	Colleton	40.0	463.5
Union	15.7	432.6	Florence	42.1	667.6
Lancaster	15.9	543.2	Edgefield	42.7	444.7
Pickens	16.5	527.4	Chesterfield	42.8	659.1
Anderson	16.9	514.0	Marlboro	43.8	649.4
Lexington	19.9	570.1	Berkeley	43.9	620.4
Laurens	20.3	422.9	Bamberg	44.9	577.1
Aiken	21.3	515.3	Orangeburg	46.9	560.5
Newberry	22.3	430.9	Saluda	48.6	503.4
Cherokee	22.7	528.3	Allendale	51.0	430.7
Chester	23.1	475.4	Marion	52.1	641.4
Georgetown	24.1	716.5	Calhoun	55.5	457.9
Oconee	24.3	602.2	Horry	58.8	675.2
Abbeville	25.4	526.6	Dillon	60.5	684.4
Fairfield	28.4	457.0	Barnwell	60.8	598.2
Kershaw	32.8	605.6	Lee	63.9	548.8
Sumter	33.7	657.7	Clarendon	69.8	706.0
Dorchester	35.2	533.5	Williamsburg	72.2	685.7

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Table 43; and Table I, Appendix A.

Figure 4: Relationship Between Per Cent of Employed Population in Agriculture and the Fertility of the White Rural-Farm Population



based upon extremes of the scale.

By inspection, the relationship appears to be of moderate to light strength as there is a well-developed scatter. This indicates the presence of other causal factors. Also, the fertility of the white rural-farm people of some of the counties is in sharp variance with the general tendency. A discussion of these deviants may lend insight to the presence of other factors. Georgetown County exhibits a low degree of rural economy, 24 per cent, but very high fertility, 716. Colleton, Edgefield, Allendale, and Calhoun counties show high degrees of rural economy and low fertilities. Their economies are respectively 40, 42.7, 51, and 55.5 per cent while their effective fertility ratios are 463.5, 444.7, 430.7 and 457.9.

In none of these counties has there been any sudden shift in farm population. The state as a whole and each of these counties have experienced a decline in farm population since 1940. The declines are: Georgetown 10 per cent, Edgefield 22 per cent, Allendale 16 per cent, Calhoun 14 per cent, and Colleton 14 per cent. These are less than the State decline of 23 per cent.

There are no outstanding economic shifts shared by the five counties. None of the counties was characterized by a large number of share croppers in 1940 as each had less

than 250.[17] In 1949 Edgefield had 493 croppers, Allendale 9, Calhoun 486, Colletin 141, and Georgetown 129.[18] Thus share cropping is not practiced equally in all counties of the state. All five of the counties had relatively low proportions of share cropping in comparison to the state as a whole.

To determine the strength of the relationship between the pursuit of a rural economy and the fertility of the white rural-farm people established in the above table, a correlation table was constructed and a correlation computed. A correlation of 0.52 and a coefficient of alienation of 0.73 was obtained. The relationship is thus of moderate or less than moderate strength as the visual inspection of the diagram indicated. Other causal factors must be sought. Before proceeding, some aspects of this index must be considered.

The index, per cent of employed population in agriculture, can be refined. In its present form it refers to all agricultural workers and not to white workers alone.

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[17] Allen Edwards, Population in Relation to Resources and Employment Opportunities, South Carolina Agriculture Experiment Station, Bulletin 358, Clemson, South Carolina, 1945, Figure 8, p. 14.

[18] United States Bureau of the Census. United States Census of Agriculture: 1950, Volume I, Part 16, Chapter B, Table 2.

It is quite possible that the rurality of a given county is principally a Negro phenomenon. The whites in the county may be highly urban, but if they are in the minority, the county would be considered rural.

The United States Census of Population: 1950 contains figures for the occupational classification of the non-white and the total population of each county.[19] These materials are contained in Tables 43 and 44.[20]

Table XVI contains the data bearing upon the relationship between the fertility of the white rural-farm population and that population's employment in agriculture. The counties are listed in column one. Column two shows the per cent of the employed white population in agriculture for the county. Column three presents the effective fertility ratios of the white rural-farm population of the county.

A direct relationship between the degree of employment in agriculture and fertility is observed. As agricultural employment increases, fertility increases. This relationship is not dependent upon the extremes of the continuum but is consistent throughout. However, counties having 10 per cent or less of their populations employed in agriculture

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[19] The non-white classification for the South Carolina population is almost equivalent to a Negro classification.

[20] Bureau of the Census, United States Census of the Population: 1950, Volume II, "Characteristics of the Population," Part 40, South Carolina, Chapter B (Government Printing Office, Washington, D. C., 1952).

Table XVI: Relationship Between Per Cent of White Employed in Agriculture and the Fertility of the White Rural-Farm Population by County[1]

Counties	Per cent of white employed in agriculture	Effective fertility ratios white rural-farm population	Counties	Per cent of white employed in agriculture	Effective fertility ratios white rural-farm population
Charleston	1.7	502.6	Jasper	18.0	489.8
Richland	2.2	435.1	Oconee	18.0	602.2
Greenwood	4.0	407.0	Berkeley	19.3	620.4
Greenville	4.7	430.1	Darlington	19.4	606.1
Union	6.2	432.6	Hampton	21.1	596.8
York	7.0	537.8	Dorchester	21.7	533.5
Chester	8.1	475.4	Allendale	22.1	430.7
Spartanburg	8.1	472.9	Edgefield	22.4	444.7
Beaufort	8.4	497.5	Bamberg	22.4	577.1
Lancaster	8.6	543.2	Marlboro	23.6	649.4
Fairfield	9.6	457.0	Orangeburg	25.1	560.5
Laurens	10.0	422.9	Marion	26.0	641.4
Aiken	10.6	515.3	Florence	26.4	667.6
Anderson	10.9	514.0	Calhoun	28.6	457.9
Sumter	11.0	657.7	Colleton	29.0	463.5
Georgetown	13.0	716.5	Chesterfield	30.4	659.1
Newberry	13.0	430.9	Saluda	31.6	503.4
Cherokee	13.8	528.3	Dillon	31.9	684.4
Pickens	13.9	527.4	Lee	33.3	548.8
McCormick	14.0	479.6	Horry	34.2	675.2
Abbeville	14.1	526.6	Clarendon	35.0	706.0
Lexington	15.1	570.1	Barnwell	35.3	598.2
Kershaw	17.5	606.6	Williamsburg	39.3	685.7

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Tables 43 and 44; and Table I, Appendix A.

are indiscriminant in fertility performance.

The strength of the established relationship was measured by correlation. A correlation of 0.60 was attained with a coefficient of alienation of 0.64. These measures indicate a relationship of moderate strength with a strong tendency to scatter. More than one causal factor exists. This general picture is the one indicated in the visual inspection of the data.

In the lower percentile level, 10 per cent and under, three counties, Charleston, York, and Lancaster, show above normal fertilities. In the moderate percentile level, Sumter and Georgetown counties exhibit similar fertility performances. In the higher percentile level, 20 per cent and above, a number of counties exhibit below normal fertility performances. These are Allendale, Edgefield, Calhoun, Colleton, Saluda, Lee, and Barnwell. There is no immediate connection between these counties. They do not present a contiguous grouping.

An immediate proposal is a more accurate consideration of the original proposition of an increased transfer to an urban economy with resulting decline in fertility.

Unfortunately data for suggested indexes two and three do not permit the separation of the experiences of whites and Negroes. This distinction has been shown to be signifi-

cant in the analysis of Tables XV and XVI. It appears, therefore, that any relationship shown to exist with indexes two and three will be stronger than the face values of the data indicate.

Index two is the per cent of farm operators working off of their farms 100 days or more during the year. Data for the index were obtained from the United States Census of Agriculture: 1950, Volume I, Part 16, Chapter B, Table 1. The data apply to the work year 1949. Table XVII presents the data on the relationship between the fertility performance of the white rural-farm population and the proportion of the farmers having off-farm work of 100 days or more during the 1949 work year. The counties are listed in column one, the per cent of part time farm operators in column two, and the effective fertility ratios of the white rural-farm population in column three. It must be noted that this index pertains to farm operators only and does not consider the off farm activities of farm laborers, although the latter are included in the measures of fertility.

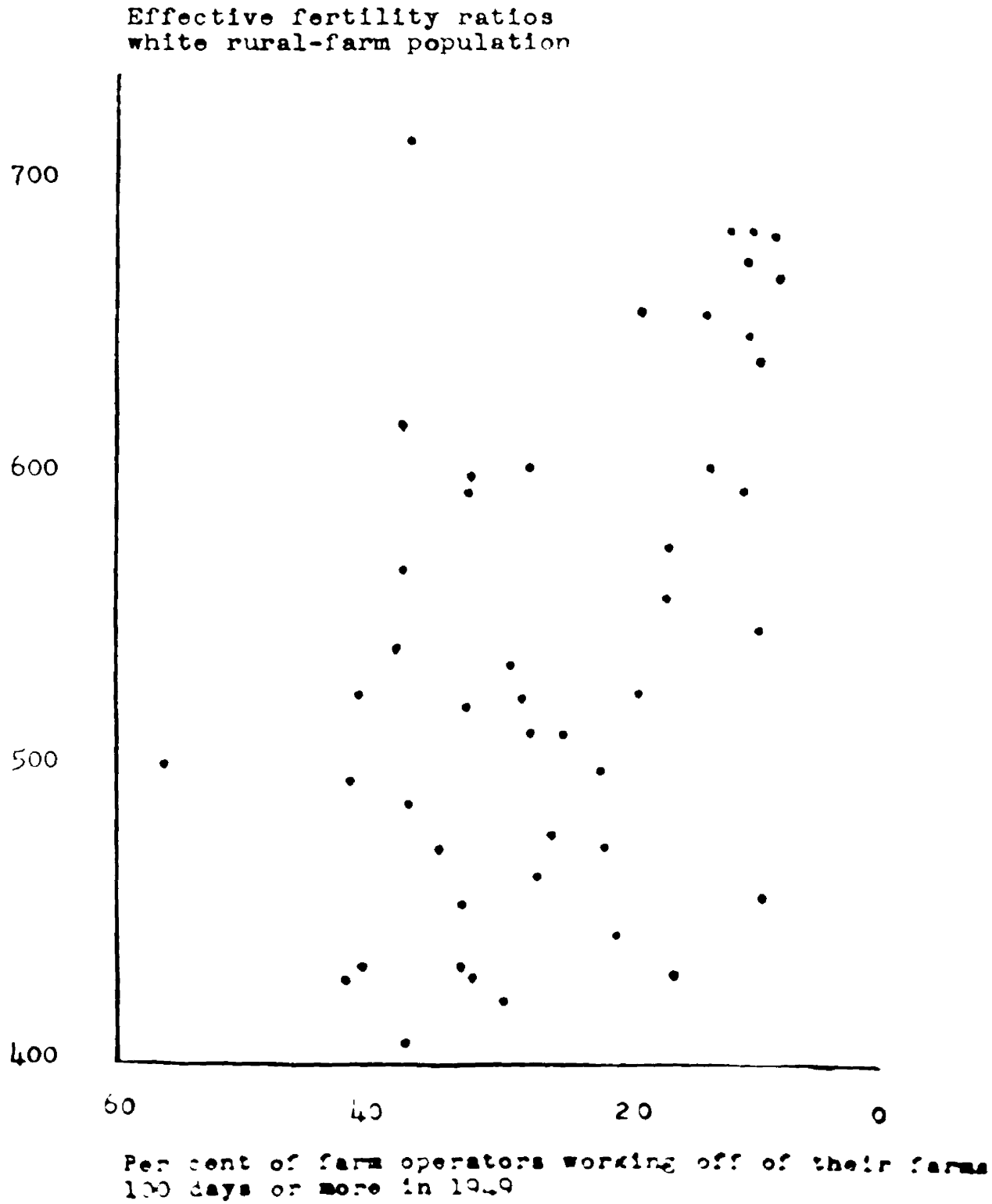
An examination of the data in Table XVII does not suggest a relationship between the practice of a partial urban economy and the fertility of the white rural-farm population. To render a clearer analysis, the data in columns two and three were plotted in a scatter diagram which is reproduced below in Figure 5. A quick appraisal suggests a relation-

Table XVII: Relationship Between Per Cent of Farm Operators Working Off of Their Farms 100 Days or More in 1949 and the Fertility of the White Rural-Farm Population by County[1]

Counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population	Counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population
Charleston	56.4	502.6	Colleton	26.5	463.5
Greenville	41.9	430.1	McCormick	25.6	479.6
Beaufort	41.4	497.5	Aiken	24.5	515.3
Pickens	40.6	527.4	Saluda	21.9	503.4
Richland	40.5	435.1	Chester	21.6	475.4
Lancaster	37.4	543.2	Edgefield	20.3	444.7
Berkeley	37.4	620.4	Cherokee	18.9	528.3
Lexington	37.2	570.1	Chesterfield	18.7	659.1
Greenwood	37.1	407.0	Orangeburg	16.7	560.5
Jasper	36.8	489.8	Bamberg	16.3	577.1
Georgetown	36.8	716.5	Allendale	15.9	430.7
Spartanburg	34.5	472.9	Sumter	13.6	657.7
Union	32.8	432.6	Darlington	13.2	606.1
Fairfield	32.3	457.0	Clarendon	11.9	706.0
Dorchester	32.1	533.5	Barnwell	10.8	598.2
Hampton	32.1	596.8	Horry	10.3	675.2
Newberry	31.9	430.9	Marlboro	10.2	649.4
Oconee	31.9	602.2	Williamsburg	10.0	685.7
Laurens	29.2	422.9	Lee	9.5	548.8
York	28.7	537.8	Marion	9.4	641.4
Abbeville	27.9	526.6	Calhoun	8.9	467.9
Anderson	27.4	514.0	Dillon	8.4	684.4
Kershaw	27.3	605.6	Florence	8.2	667.6

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 1; and Table I, Appendix A.

Figure 5: Relationship Between Per Cent of Farm Operators Working Off of Their Farms 100 Days or More in 1949 and the Fertility of the White Rural-Farm Population



ship. However, with further study this assumption fails. In the lower percentile level, below 15 per cent, fertilities are with two exceptions high. But, from 20 per cent and above no relationship is discernable. There is heavy scatter, and no regression line could be plotted. A correlation could be computed for the total Table, and it would probably show some slight relationship. This would be spurious, however, as it would clearly be a function of the cases appearing in the lower percentile level.

Counties showing a combination of low percentages of 100 days or more of off-farm work and high fertility ratios are Sumter, Darlington, Clarendon, Barnwell, Horry, Marlboro, Williamsburg, Marion, Dillon, and Florence. The counties showing low fertility and low percentages of off-farm work are Lee and Calhoun.

Will the use of class intervals resulting in the telescoping of the data in the area below 20 per cent influence the results? Will it by generalizing and broadening the base of the analysis demonstrate an overall tendency? The telescoping can be done by locating the potential breaks in the percental distribution of the counties. Wherever a break of several points occurs in the array a tentative class boundary can be set up. Such classes are not equi-interval, but they are legitimate for partial analysis. This was done to the data in Table XVII. The results are dis-

appointing. There is still no indication of a relationship. On the basis of this index no relationship was discerned between the fertility of the white rural-farm people and the practice of a partial urban economy.

Are there any variations within the Table? Is there a sub-regional breakdown within which the inverse relationship between fertility and off-farm work is established? A simple division of the state into two sections and an interstitial band is frequently made.[21] The two regions are the Coast Plain, the earlier ocean bed raised by geologic forces, and the Piedmont, and interior area of older crystalline rocks. The dividing band is the fall line running from North Augusta, Georgia through Aiken, Lexington, Richland, Kershaw, and Chesterfield counties and entering North Carolina slightly east of Cheraw town in Chesterfield County, South Carolina. From this band to the ocean on the east lies the Coast Plain while from the band to the west lies the Piedmont. The data were subclassified by this system and the results appear in Table XVIII.

No inverse relationship between fertility and off-farm work is discovered among the Piedmont Counties. In the Coast Plain the northeast counties stand off in a block possessing high fertility and low off farm work ratios. Other-

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[21] G. Croft Williams, A Social Interpretation of South Carolina (Columbia, South Carolina: University of South Carolina Press, 1946), p. 3.

Table XVIII: Relationship Between Off-Farm Work and the Fertility of the White Rural-Farm Population by Regions and Counties[1]

Regions and counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population	Regions and counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population
Piedmont			Sand Hills		
Greenville	41.9	430.1	Richland	40.5	435.1
Pickens	40.6	527.4	Lexington	37.2	570.1
Lancaster	37.4	543.2	Kershaw	27.3	605.5
Greenwood	37.1	407.0	Aiken	24.5	515.3
Spartanburg	34.5	472.9	Chesterfield	18.7	659.1
Union	32.8	432.6	Coast Plain		
Fairfield	32.3	457.0	Charleston	56.4	502.6
Newberry	31.9	430.9	Beaufort	41.4	497.5
Oconee	31.9	602.2	Berkeley	37.4	620.4
Laurens	29.2	422.9	Jasper	36.8	489.8
York	28.7	637.8	Georgetown	36.8	716.5
Abbeville	27.9	626.6	Dorchester	32.1	533.5
Anderson	27.4	514.0	Hampton	32.1	596.8
McCormick	26.5	479.6	Colleton	26.5	463.5
Saluda	21.9	503.4	Orangeburg	16.7	560.5
Chester	21.6	475.4	Bamberg	16.3	577.1
Edgefield	20.3	444.7	Allendale	15.9	430.7
Cherokee	18.9	528.3	Sumter	13.6	657.7

Table XVIII (continued): Relationship Between Off-Farm Work and the Fertility of the White Rural-Farm Population by Regions and Counties[1]

Regions and counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population	Regions and counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population
Coast Plain			Lee	9.5	548.8
Darlington	13.2	606.1	Marion	9.4	641.4
Clarendon	11.9	706.0	Calhoun	8.9	457.9
Barnwell	10.8	598.2	Dillon	8.4	684.4
Horry	10.3	675.2	Florence	8.2	667.6
Marlboro	10.2	649.4			
Williamsburg	10.0	685.7			

1. Compiled from data in Table XVII; regional breakdown defined by G. Croft Williams, A Social Interpretation of South Carolina (Columbia, South Carolina: University of South Carolina Press, 1946), p.3.

wise there is considerable variability among this grouping of counties. No real relationship can be discovered between the two variables within the Coast Plain. The five counties in the fall line band, interstitial to the two areas, do show the expected inverse relationship, with the exception of Aiken County which is considerable out of line. However, such a small size grouping prohibits more than the mention of this fact.

This failure in the use of the regional breakdown tends to discredit any suggestion about the role of the type of urban economy. The industrial picture of the state shows the industries to be concentrated in the Piedmont area. The necessary industrial breakdown figures are available for 1930. Although they are not recent, they are indicative of this location of industry. The Piedmont is the area of cotton-textile manufacturing and the Coast Plain is an area of lumbering and processing.[22]

Does urbanism appear in the picture? This can be checked by classifying the counties by degree of urbanization and then analysing the present relationship within this classification system. In Chapter Two, Table XII appearing on pages 74-75 presents the counties ranked by per cent of white population classified as urban. This ranking by per

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[22] Allen, et. al., op. cit., p. xxiv.

cent can be conveniently subdivided in 20 per cent intervals. This was done and within each such class the data upon the relationship between fertility and off-farm work were studied. The results appear in Table XIX. Counties having no urban population were considered separately. The proposed inverse relationship between off-farm work and the fertility of the white rural-farm population is not present. Within the class interval 1-19 per cent, a general tendency towards the proposed relationship does exist, but the small number of cases prohibits stressing the elements of the relationship. There is a considerable variability, and several counties appear out of line with the general tendency. These are Oconee and Chesterfield Counties with overly high fertility and Lee County with depressed fertility. In the third class, 20-39 per cent, the expected relationship does appear. There are a larger number of cases, and more stress can be placed on the findings. They indicate an inverse relationship with a regular increase in fertility coinciding with the decline in off-farm work. Two outstanding exceptions are Kershaw County with higher than the expected fertility for its position on the off-farm work scale and Chester County with lower than the expected fertility. There are a limited number of counties with more than 40 per cent of the white population classified as urban, and less importance can be placed on the data included. The expected inverse relationship appears. Georgetown County appears rather out

XIX: Relationship Between Off-Farm Work and the Fertility of the White Rural-Farm Population by Counties Grouped for Degree of Urbanity[1]

Per cent of population classified as urban	Counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population
No urban population	Berkeley	37.4	620.4
	Jasper	36.8	489.8
	Hampton	32.1	596.8
	McCormick	25.6	479.6
	Saluda	21.9	503.4
	Allendale	15.9	430.7
	Barnwell	10.8	598.2
	Calhoun	8.9	457.9
1-19 per cent	Beaufort	41.4	497.5
	Pickens	40.6	527.4
	Dorchester	32.1	533.5
	Oconee	31.9	602.2
	Colleton	26.5	463.5
	Edgefield	20.3	444.4
	Chesterfield	18.7	659.1
	Clarendon	11.9	706.0
	Horry	10.3	675.2
	Williamsburg	10.0	685.7
	Lee	9.5	648.8
	Dillon	8.4	684.4
20-39 per cent	Lancaster	37.4	543.2
	Lexington	37.2	570.1
	Spartanburg	34.5	472.9
	Union	32.8	432.6
	Fairfield	32.3	457.0
	Newberry	31.9	430.9
	Laurens	29.2	422.9
	Abbeville	27.9	526.6
	Kershaw	27.3	605.6
	Aiken	24.5	515.3
	Chester	21.6	475.4

Table XIX (continued): Relationship Between Off-Farm Work and the Fertility of the White Rural-Farm Population by Counties Grouped for Degree of Urbanity[1]

Per cent of population classified as urban	Counties	Per cent of farm operators working off of their farms 100 days or more in 1949	Effective fertility ratios white rural-farm population
20-39 per cent	Cherokee	18.9	528.3
	Orangeburg	16.7	560.5
	Bamberg	16.3	577.1
	Darlington	13.2	606.1
	Marlboro	10.2	649.4
	Marion	9.4	641.4
	Florence	8.2	667.6
40 per cent and over	Charleston	56.4	502.6
	Greenville	41.9	430.1
	Richland	40.5	435.1
	Greenwood	37.1	407.0
	Georgetown	36.8	716.5
	York	28.7	537.8
	Anderson	27.4	514.0
	Sumter	13.6	657.7

1. Compiled from data in Tables XIII and XVII; and Table I, Appendix A.

of place with a much higher fertility than its position on the scale would indicate.

The purpose of this Table has been to investigate a secondary factor interposed in the data bearing upon the relationship between the fertility of the white rural-farm population and off-farm work. Its primary function has been to indicate a possible and probable off-farm source of employment. It has served to uphold the expected relationship. When given equal probability of contact with urban communities and work, the farm people in those counties having the largest proportion of off-farm work also reflect the lowest white rural-farm fertility ratios. In the one case where there was an absolute minimum of urban contact no tendency towards this relationship was found.

The United States Census of Agriculture: 1950 contains data on the number of part-time farms in each county. These data were used to construct the index, per cent of farms classified as part-time farms. By census definition a part-time farm is any farm from which the farm products are sold for more than $250 but less than $1200 per year when the farm operator either worked off of his farm for 100 days or more in 1949 or had a greater income from non-farm activities.[23]

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[23] Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, p. XIX.

From these data and previously computed effective fertility ratios, Table XX was constructed. Column one contains the counties, column two the per cent of part-time farms, and column three the effective fertility ratios of the white rural-farm population. Visual inspection of columns two and three uncovered no relationship so a scatter diagram of the variables was plotted. It is reproduced as Figure 6. Again a quick appraisal leads to a presumed relationship, while a continued examination rejects this presumption. It is true that a slight tendency may be present. Any relationship would be due to some half dozen counties evidencing eight per cent or less of part-time farms. The counties concerned are Clarendon, Sumter, Marlboro, Darlington, Williamsburg, Marion, Dillon, Horry, and Florence. No new counties have been added to this block which was originally identified in Table XVIII. Barnwell county has been dropped. Only Lee county shows low part-time farming and low fertility ratios.

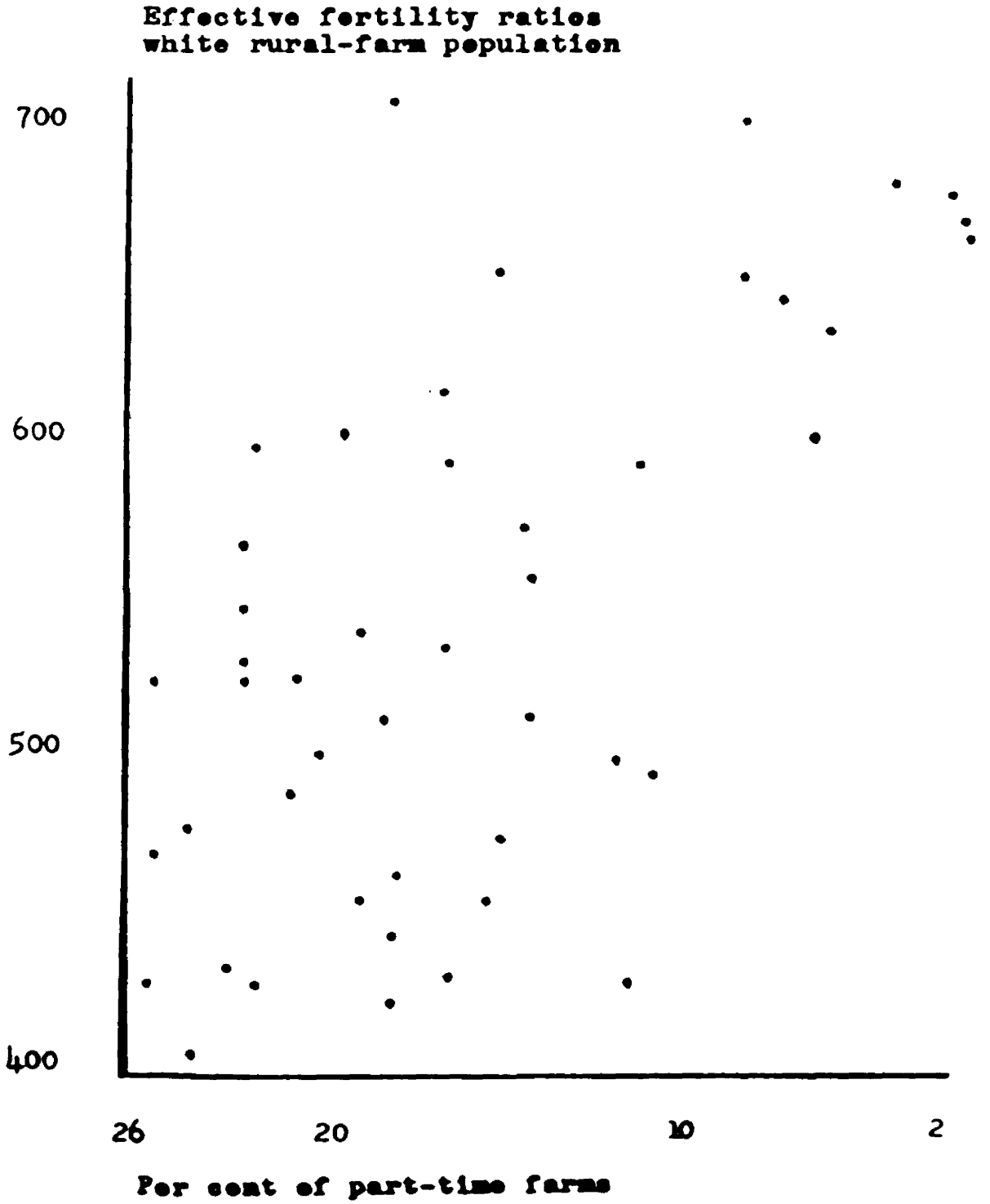
Again it appears that other factors intervene in this proposed relationship. Such could be expected following the experiences involved in index two. The immediate proposition is the influence of an adjacent urban economy on the off-farm work. In this case as the part-time farm is not economically self-sufficient for the farm family, it's undertaking involves an original employment. The presence of an urban population would indicate probable urban employ-

Table XX: Relationship Between Per Cent of Part-Time Farms of All Farms and the Fertility of the White Rural-Farm Population by County[1]

Counties	Per cent of part-time farms of all farms	Effective fertility ratios white rural-farm population	Counties	Per cent of part-time farms of all farms	Effective fertility ratios white rural-farm population
Newberry	25.6	430.9	York	16.6	537.8
Spartanburg	25.2	472.9	Union	16.6	432.6
Pickens	25.0	527.4	Hampton	16.6	596.8
McCormick	24.2	479.6	Calhoun	15.5	457.9
Greenwood	24.1	407.0	Chesterfield	15.2	659.1
Richland	22.9	435.1	Chester	15.1	475.4
Dorchester	22.6	533.5	Bamberg	14.4	577.1
Abbeville	22.5	526.6	Orangeburg	14.1	560.5
Lexington	22.5	570.1	Aiken	14.1	515.3
Oconee	22.2	602.2	Charleston	11.6	502.6
Greenville	22.2	430.1	Allendale	11.4	430.7
Jasper	21.3	489.8	Barnwell	10.9	598.2
Cherokee	21.0	528.3	Beaufort	10.6	497.5
Saluda	20.3	503.4	Clarendon	8.0	706.0
Kershaw	19.7	605.6	Sumter	7.9	657.7
Lancaster	19.2	543.2	Marlboro	6.8	649.4
Fairfield	19.2	457.0	Darlington	5.8	606.1
Anderson	18.5	514.0	Williamsburg	5.7	685.7
Georgetown	18.3	716.5	Marion	5.3	641.4
Edgefield	18.3	444.7	Lee	4.9	548.8
Laurens	18.2	422.9	Dillon	3.9	684.4
Colleton	17.9	463.5	Horry	3.7	675.2
Berkeley	16.8	620.4	Florence	3.3	667.6

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 7, and Table I, Appendix A.

Figure 6: Relationship Between Per Cent of Part-Time Farms and the Fertility of the White Rural-Farm Population



ment. The procedure in dealing with this feature was the same as that devised for the second index. The selected intervals were no urban population, 1-19 per cent, urban, 20-39 per cent urban, and 40 per cent and over of white population classified as urban.

There were only eight counties in the first class of no urban population, and the resulting analysis could not be stressed. Calhoun and Allendale counties are characterized by lower fertilities than would be expected from their scale position. The other six counties show an orderly progression in increasing fertility with decreasing part-time farming. The variation and small number of cases prohibit a statement on tendency.

The class interval 1-19 per cent urban is larger as it contains 12 cases. As a result more stress can be placed upon the relationship discovered. The results are only partially in line with the expected inverse relationship. The data within the class fall into two groupings. Four counties, Clarendon, Williamsburg, Dillon, and Horry, have high fertility and low part-time farming ratios. At the opposite end of the scale, Pickens, Dorchester, Edgefield, and Colleton have low fertility and high part-time farming ratios. In their midst is Oconee County with a high fertility ratio. Interstitial to the two groupings is Chesterfield County with a moderate part-time farming ratio and a

Table XXI: Relationship Between Part-Time Farming and the Fertility of the White Rural-Farm Population by Counties Grouped for Degree of Urbanity[1]

Per cent of population classified as urban	Counties	Per cent of part-time farms of all farms	Effective fertility ratios white rural-farm population
No urban population	McCormick	24.2	479.6
	Jasper	21.3	489.8
	Saluda	20.3	503.4
	Berkeley	16.8	620.4
	Hampton	16.6	596.8
	Calhoun	15.5	457.9
	Allendale	11.4	430.7
	Barnwell	10.9	598.2
1-19 per cent	Pickens	25.0	527.4
	Dorchester	22.6	533.5
	Oconee	22.2	602.2
	Edgefield	18.3	444.7
	Colleton	17.9	463.5
	Chesterfield	15.2	659.1
	Beaufort	10.6	497.5
	Clarendon	8.0	706.0
	Williamsburg	5.7	685.6
	Lee	4.9	548.8
	Dillon	3.9	684.4
	Horry	3.7	675.2
20-39 per cent	Newberry	25.6	430.9
	Spartanburg	25.2	472.9
	Abbeville	22.5	526.6
	Lexington	22.5	570.1
	Cherokee	21.0	528.3
	Kershaw	19.7	605.6
	Lancaster	19.2	543.2
	Fairfield	19.2	457.0
	Laurens	18.2	422.9
	Union	16.6	432.6
	Chester	15.1	475.4

Table XXI (continued): Relationship Between Part-Time Farming and the Fertility of the White Rural-Farm Population by Counties Grouped for Degree of Urbanity[1]

Per cent of population classified as urban	Counties	Per cent of part-time farms of all farms	Effective fertility ratios white rural-farm population
20-39 per cent	Bamberg	14.4	577.1
	Orangeburg	14.1	560.5
	Aiken	14.1	515.3
	Marlboro	6.8	649.4
	Darlington	5.8	606.1
	Marion	5.3	641.4
	Florence	3.3	667.6
40 per cent and over	Greenwood	24.1	407.0
	Richland	22.9	435.1
	Greenville	22.2	430.1
	Anderson	18.5	514.0
	Georgetown	18.3	716.5
	York	16.6	537.8
	Charleston	11.6	502.6
	Sumter	7.9	657.7

1. Compiled from data in Tables XII and XX, and Table I, Appendix A.

high fertility ratio. Thus, there is not a progression but a sharp break in the data. But, a sharp break in the fertility data is to be expected as there is a sharp break in per cent of part-time farms in this class interval. Those counties with very high fertility have very low percentages of part-time farms while those counties with low fertility have very high percentages of part-time farms. A gradual progressive relationship is not to be expected.

In the third class, 20-39 per cent of white population classified as urban, there are 18 counties which is sufficient for generalization. Within this class the part-time farming scale shows a regular progressive decrease to 14 per cent below which there is a sharp drop in the scale to 6.8 per cent. Those counties grouped in this lower segment of the scale all have very high fertilities. Those counties grouped in the upper segment of the scale have variable fertility performances. Within this class, therefore, the relationship is one between the extremes of part-time farming and the fertility of the white rural-farm population.

There are only eight cases in the final class of 40 per cent or more of the total white population of the county classified as urban. Generalization can not be made in any strength. In this class the data tend to support the expected inverse relationship. They do so in an orderly fashion. The only exception is Georgetown County where a moderate part-time farming ratio is associated with a high

fertility ratio.

In summary the data in this Table support an inverse relationship between the fertility of the white rural-farm population and part-time farming when there is a probability that the latter is related to urban employment. The data are less convincing than those of the previous tables. There is a strong tendency to a relationship at the extremes of the scale as opposed to a progressive relationship at all points on the scale. In a part this is a function of the scale itself. Also, it must be remembered that the present index was not standardized for the white race, only. Its accuracy is therefore questionable.

Summary

An analysis of the impact of a shift from a rural to an urban economy upon rural farm fertility is presented in this chapter. This problem grew out of work presented in Chapter II showing that mere presence and contact with urban communities were not associated with reduced rural-farm fertility. It was inferred that some aspect of this contact was important. Demographic theory indicates economic factors are basic to fertility variation, that urban economic demands and expectations lead to controlled and reduced fertility. It was, therefore, proposed that the partial transfer of white rural-farm people to an urban economy would result in their reduced fertility.

The nature of the data and their unit of presentation required an analysis on a county basis. Counties were ranked on scales giving insight to a partial transfer to an urban economy and on a scale of fertility performance. Their ranked positions were compared and a relationship or its lack was determined. Strengths of relationships were measured by correlations. The following were selected as measures of a partial transfer to an urban economy:

I. Per cent of employed population in agriculture.

II. Per cent of farm operators working off of their farms 100 days or more in 1949.

III. Per cent of farms classified as part-time farms.

The analysis of the tabulated data supported the originating hypothesis. The fertility of the white rural-farm population is inversely related to a partial transfer to an urban economy. This was true for each index used. The fertility of the white rural-farm population is directly related to the degree to which farming is the prevailing occupation of the county. Correlation indicates a moderate relationship of 0.52. There is however, considerable variability as shown by a coefficient of alienation of 0.73. When consideration is given to the racial bias in the index, the relationship is shown to be stronger. White rural-farm fertility is directly related to the extent to which farming is the prevailing occupation of the employed white popula-

tion of the county. The correlation strength is 0.62 and the coefficient of alienation is 0.64.

This interpreted relationship is substantiated by the analysis using indexes two and three. These indexes permit the other side of the coin to be examined because they refer to the actual extent of a transfer to a non-agricultural economy. It was necessary in each case to modify the index so it would indicate the probable nature of the off-farm employment. This was done by comparing grouped counties having somewhat similar proportions of urban population. In both cases the proposed inverse relationship was found to exist. As the first index, when modified for racial biases, showed a stronger relationship, it is presumed that the relationships established with the use of indexes two and three would have been stronger if they could have been modified in like fashion.

The previously defined conditions of increasing mechanization and increased yields indicate a growing partial transfer to an urban economy. Such a phenomenon will mean a continued over all reduction of the reproduction rate of the white rural-farm population.

The variability of the data indicate the presence of other factors. One significant area of socio-economic activity has not been considered. This is the actual variation of socio-economic position within the white rural-farm population. This will be studied in the next chapter.

CHAPTER FOUR

THE FERTILITY OF THE WHITE RURAL-FARM POPULATION AND SOCIO-ECONOMIC CHARACTERISTICS

Every society is characterized by a ranking of its members in hierarchial order.[1] Each member is accorded certain prestige and authority in dealings with others of the society. Members of the society attaining equality in ranking are referred to as a stratum or class of that society. Having approximately the same life chances or opportunities, and the same social capacity to control the actions of others, the members of a stratum tend to have the same outlook, the same interests, values, and attitudes.[2] In total they share a common way of life. The American Society is stratified primarily on an economic basis.[3]

American rural society is stratified. The degrees and the types of stratification have been analyzed in detail in

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[1] Kingsley Davis and Wilbert E. Moore, "Some principles of Stratification," American Sociological Review, Volume X (1945), pp. 242-243.

[2] Richard Centers, The Psychology of Social Classes (Princeton, New Jersey: Princeton University Press, 1949), Chapter 12.

[3] Robin Williams, American Society (New York: Alfred A. Knopf, 1952), pp. 92-96.

a number of studies.[4] Pertinent to this study is the social participation or interaction between members of the same stratum or class. Urban class studies by Warner and Lunt in the North and the study by Davis and the Gardners in the South demonstrate that clique and formal participation follow class lines.[5] With some modification this is true of rural action.[6] These studies reveal the tendency of rural families to participate along class lines.[7] The

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[4] John Dollard, Caste and Class in a Southern Town (New York: Harper and Brothers, 1937); Allison Davis, Burleigh Gardner, and Mary Gardner, Deep South (Chicago: Illinois: University of Chicago Press, 1941); Harold Kaufman, Prestige Classes in a New York Rural Community, Cornell Agricultural Experiment Station Memoir 260, Ithaca, New York, 1944; James West, Plainville, U.S.A. (New York: Columbia University Press, 1945); Morton Rubin, Plantation County (Chapel Hill, North Carolina: University of North Carolina Press, 1951), and E. A. Schuler, Social Status and Farm Tenure - Attitudes and Conditions of Corn Belt and Cotton Belt Farmers (United States Department of Agriculture Social Research Report IV, Government Printing Office, Washington, D.C., 1938).

[5] W. Loyd Warner and Paul Lunt, The Social Life of a Modern Community (New Haven, Connecticut: Yale University Press, 1941), p. 90, and Davis, Gardner, and Gardner, op. cit., p. 138.

[6] Schuler, op. cit., Figure 26, p. 196.

[7] Ibid, Figure 26, p. 196; Davis, Gardner, and Gardner, op. cit., pp. 137-170; West, op. cit., pp. 133-134; Rubin, op. cit., pp. 162, 176-177, 182-183.

significance of this participation, of joint action achieved along lines of common and like interests and attitudes, is pointed up by Charles Loomis in a study of relocated farm families in the Dyes Colony of Mississippi County, Arkansas.[8] At the end of two years farmers electing to leave generally belonged to the same clique; those remaining belonged to a different clique.[9] In terms of interaction these cliques were virtually isolated from each other.

In terms of the relationship between socio-economic status and fertility, it is logical to conclude that the sharing of common interests and needs enforced by primary social control will produce socio-economically based fertility patterns.

Relationship between Fertility and Socio- Economic Status

The demographic research on fertility reviewed in Chapter I pages 9-14 demonstrates the existence of an inverse relationship between fertility and socio-economic status. Families characterized by a low income and low social status tend to have more children than families of

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[8] Charles P. Loomis, Studies of Rural Social Organization (College Book Store, East Lansing, Michigan, 1945), pp. 41-123.

[9] Ibid., pp. 122-123

moderate and high incomes and status. However, families of high income and status tend to have larger families than the moderate group, but less then the low group.[10]

This relationship is pertinent to the entire nation, separate regions, states, localities, and communities. It has been verified by various analysts with t he use of different data. And, it has been established for different time intervals. This evidence was introduced in Chapter I, pages 9-11.

Fertility variables are interdependent and at a theoretical level this relationship is expected to exist within the rural-farm population. Farm populations have higher fertility than urban populations, and lower classes have higher fertility than upper classes. Therefore, families within the socio-economic class breakdowns of the rural-farm population may be expected to exhibit variable fertility. Farm families of upper socio-economic status should have smaller families than those in lower socio-economic levels.

Analysis of the fertility of the rural-farm population, while less extensive, upholds these expectations. Their fertility varies by state and by county within each state.

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[10] Paul Landis, Population Problems (New York: American Book Co., 1948), pp. 111-112.

These variations can be partially explained by socio-economic factors. The previously quoted Belcher and Duncan studies introduce some factors.[11] Belcher showed farm fertility varied by type of farming area. From this he deduced variations in economic level as the basic causal agent. Duncan's study demonstrated the influence of economic status on village fertility. Village families of lower economic level had more children than those of higher economic status. Among the factors of urbanization, village size, and type of farming area, the economic level of the village was shown to be the most significant.

Beegle and Smith in analyzing rural farm fertility noted the variation by county and called attention to the high fertility in those counties characterized by subsistence farming and low levels of living.[12]

Notestein's study of fertility as related to social class indicated the tendency of farm tenant families to exceed the fertility of farm owning families.[13] Woofter and

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[11] John Belcher, "Fertility of Village Residents of Oklahoma," Social Forces, XXIV (1946), 328-331; and Otis Duncan, "Fertility of the Village Population in Pennsylvania," Social Forces, XXVIII (1950), 304-309.

[12] J. Allan Beegle and T. Lynn Smith, Differential Fertility in Louisiana, Louisiana Agricultural Experiment Station Bulletin 403, Baton Rouge, Louisiana, 1946, p. 40.

[13] Frank Notestein, "The Differential Rate of Increase Among the Social Classes of the American Population," Social Forces, XII (1933), pp. 32-33.

associates in reporting on tenants reported the pressure landlords placed on tenants to have large families.[14] The size of tenant acreage was allocated on the basis of available family labor.

Garnett and Edwards reporting on the rural population of Virginia stated that farm tenants were more frequently characterized by having two to four children than were farm-owning families.[15] This holds true among both whites and Negroes. The same differential was reported for selected families in several parts of North Carolina.[16] Similar comparisons of fertility performance between farm owners and tenants are presented by Loomis and Beegle in their text Rural Social Systems.[17]

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[14] T. J. Woofter, et. al., Landlord and Tenant on The Cotton Plantation (Works Progress Administration, Research Monograph 5, Government Printing Office, Washington, D. C., 1936), p. 6.

[15] W. E. Garnett and A. D. Edwards, Virginia Marginal Populations - A Study in Rural Poverty, Virginia Agricultural Experiment Station Bulletin 335, Blacksburg, Virginia, 1941, pp. 331-333.

[16] C. Horace Hamilton and Marguerite York, "Trends in the Fertility of Married Women of Different Social Groups in Certain Rural Areas of North Carolina," Rural Sociology, Volume II (1937), pp. 192-203.

[17] Charles Loomis and J. Allen Beegle, Rural Social Systems (New York: Prentice Hall, Inc., 1950), Figure 11, p. 103.

The previously quoted Notestein study attributes the superior fertility of tenant farmers to their marriage at an earlier age.[18] There is doubt about this conjecture. Rupert Vance demonstrates that the application of the age distributions of the United States as a whole to the Southeast as a region would reduce the fertility performance of southern white women only 8.4 per cent.[19] As marriage as well as births is so closely bound to age, Notestein's conclusion does not seem acceptable.

Indirect evidence on birth control practices can be summarized. Farm women of higher socio-economic status practice contraception less frequently than do women from both large and small urban communities.[20] At the same time, it was demonstrated that families of higher socio-economic status more frequently practiced contraception than families from lower statuses. From this it can be inferred that tenant farm families will less frequently practice contraception than farm-owning families. Work by Vance supports this proposition. His analysis of re-

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[18] Notestein, op. cit., pp. 26-36.

[19] Rupert Vance, All These People (Chapel Hill, North Carolina: University of North Carolina Press, 1945), Figure 76, p. 101.

[20] John W. Riley and Matilda White, "The Use of Various Methods of Contraception," American Sociological Review, V (1940), p. 894.

sponses from 67 tenant farm mothers showed only eight used contraceptives.[21] This despite the fact that a substantial majority of them favored birth limitation. Margaret Hagood reports Southern women desire fewer children but do not as yet use contraceptives.[22]

To summarize, the moral structure of the rural society sustains the roles of children and parents in the family and the community.[23] Technical knowledge on contraception is limited, and its diffusion pattern is from high to low socio-economic levels. In turn the number of children per family increases from high to low socio-economic level. And, the economic system of agriculture rewards those families in the lower socio-economic levels that possess a large number of children.

Indexes of Socio-Economic Status

Suitable indexes for defining the socio-economic level of each county must be determined. Of immediate interest is some measure of family income. There are, however, immediate drawbacks to its use for farm families. The degree

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[21] Rupert Vance, "The Regional Approach to the Study of High Fertility," The Millbank Memorial Fund Quarterly, Volume XIX (1941), pp. 356-374.

[22] Margaret Hagood, Mothers of the South (Chapel Hill, North Carolina: University of North Carolina Press, 1939), pp. 122-125.

[23] See this study, pp. 13-14.

of self-sufficiency of the family will not be mirrored in its income, and the level of living will depend as well on the density of population and the consequent availability of goods and services.[24]

A logical approach to socio-economic status is an index of the level of living of the people; that is, the possessions and activities presently practiced by a people.[25] It can be presumed that in as far as their economic position will allow, individuals and families will aspire to and possess those things they desire. Moreover, their social postion in the community will be judged on a basis of these possessions and practices.[26] Within any possession there will be grades of culturally approved attributes. A house as a possession may be subdivided by materials of construction, style, cost, size, exterior appointments, residential location, state of up-keep, etc.; automobiles by manufacturer, model, year of production, up-keep, etc.

Such discriminations have been widely used in deter-

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[24] For a critique of income as an index of farm family socio-economic level, see Carter Goodrich, et. al., Migration and Planes of Living: 1920-1934 (Philadelphia, Pennsylvania: University of Pennsylvania Press, 1935), pp. 12-13.

[25] Schuler, op. cit., pp. 52-53.

[26] W. Lloyd Warner, Marchia Meeker, and Kenneth Ellis, Social Class in America (New York: American Book Co., 1949), p. 39; and Williams, op. cit., pp. 92-93.

ming the level of living of rural families. Schuler produced a series of variables in living levels of northern and southern farmers.[27] Among these were house types; house facilities, types of heating, lighting, water supply, and toilet accomodations; persons per household; rooms per house; household appliances, refrigerators, washing and sewing machines, kitchen sinks, telephone, and radio; and economic condition of the farm, total acreage, crop acreage, type and degree of mortgage. Information concerning these factors may be held as averages for each county, and the latter ranked on a socio-economic continuum.

C. E. Lively and Conrad Taeuber in analysing the relationship between socio-economic factors and migration devised a series of indexes of level of living applicable to counties.[28] They proposed the classification of land areas by quality of soil. The poorer the soil the lower the probable level of living of its rural-farm residents. In constructing indexes Lively and Taeuber equated "economic well-being" to the possession of "desirable" facilities.[29] For facilities, they considered value of dwellings and pos-

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[27] Schuler, op. cit., pp. 53-63.

[28] C. E. Lively and Conrad Taeuber, Rural Migration in the United States (United States Department of Agriculture, Bureau of Agricultural Economics, Research Monograph 19, Government Printing Office, Washington, D. C., 1939), Chapter 4.

[29] Ibid, p. 73.

session of lights, telephone, radio, running water, and automobiles.

A. R. Mangus in differentiating the rural regions of the United States considered as an important factor the level of living of the people.[30] As criteria of level of living he selected average value of farm dwelling, per cent of farms having automobiles, electric lights, piped water in the house, telephones, and radios.[31]

William Sewell in converting his original level of living scale to a short form extracted a list of 14 easily determinable and accurate criteria.[32] These criteria are construction of house, number of persons per room, type of lighting, piped water in the house, possession of power washer, refrigerator, radio, telephone, and automobile, daily paper, education of husband and wife, attendance of both at church.[33]

The basic problem in selecting criteria of level of living for this study is that they must be applied to

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[30] A. R. Mangus, Rural Regions of the United States (Works Progress Administration, Special Reports, Government Printing Office, Washington, D. C., 1940).

[31] Ibid., p. 79.

[32] William Sewell, "A Short Form of the Farm Family Socio-economic Status Scale," Rural Sociology, VIII (1943), pp. 161-169.

[33] Ibid., p. 163.

counties and must be obtainable from census reports. Thus the choice of data is limited. Also, there is no certainty that the data can be applied equally to levels of living in each county. Working upon this problem, Margaret Hagood measured the relative importance of 14 separate criteria of level of living and isolated five criteria determined to be of constant major importance.[34] These are per cent of occupied dwelling units with fewer than 1.5 persons per room, per cent of dwelling units with radios, recent model automobiles, and median years of formal schooling completed by persons 25 years of age and over.[35]

Hypotheses and Methods

On the basis of these quoted studies, it is proposed that the fertility of the white rural-farm people in South Carolina is inversely related to their socio-economic character. Specifically, the white rural population associated with upper socio-economic levels will have lower fertility performances than white rural-farm populations having lower socio-economic levels.

The available data require the use of the county as the basic unit of inquiry. This increases the difficulty

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[34] Margaret Hagood, "Development of a 1940 Rural-Farm Level of Living Index for Counties," Rural Sociology, VIII (1943), pp. 171-180.

[35] Ibid., p. 179.

of determing any existent relationship because it necessitates an indirect association of fertility and socio-economic status. Data for fertility measures, sex and age characteristics of population groups, are not subclassified by any category useful for denoting socio-economic level. Therefore, counties must be equated socio-economically and the fertility of their white rural-farm population measured. Counties ranked or grouped by one factor can then be examined in terms of the other.

Fertility ratios were computed for previous areas of this study.[36] Attention may be turned directly to measuring the socio-economic level for the rural-farm people for each county. The experiences and procedures of previous investigations have been studied and reviewed.[37] From these and the insights gained from them, the following factors have been selected as criteria of socio-economic level:

I. Reward distribution system and conditions of the general farm economy.
   A. Per cent of tenancy.
   B. Per cent of crop tenancy.
   C. Per cent of ownership.
   D. Average value of farm lands and buildings.

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[36] See this study p. 25 and Tables I, Appendix A.

[37] See this study pp. 131-135

E. Average Cash Income per farm.

II. Selected aspects of the level of living.

A. Per cent of farm dwellings having or not having.

1. Electric lights.

2. Piped Running water.

3. Radios.

4. Telephones.

5. Automobiles.

B. Per cent of farm dwellings having 1.5 persons or more per room.

C. Median years of formal schooling of the white rural-farm population 25 years of age and over.

The use of indexes in previous phases of this study has demonstrated the advisability of holding race constant. This need to account for race has been d emonstrated by Thompson in his discussion of the use of Hagood's index of level of living.[38] Negroes generally occupy the base of the economic scale, and their presence in any number is sure to distort the general economic picture. Their presence would make the scale unreliable for reference to the white population.

Reward Distribution System Related to White Rural-Farm Fer-

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[38] Warren Thompson, "Differentials in Fertility and Levels of Living in the Rural Population of the United States," American Sociological Review, VIII (1948), pp. 516-534; and T. Lynn Smith, Population Analysis (New York: McGraw-Hill Book Company, 1948), p. 45.

tility.

The whole idea of socio-economic statuses is depicted in the variations between farmers with respect to their tenure of the land and the capacity of the farm enterprise. Tenure implies the rights possessed to the use of the land by an individual or a group. In commercial agriculture, it is all important in determing who will reap the profits from farming. It is, therefore, the primary basis of socio-economic statuses in the rural population. It will be the first criterion used in this study. The capacity of the farm enterprise entails the quality of the land as a producer, the size of the operation, and the available machinery and apparatus.

Data on tenancy are given by the Census Bureau in several categorical breakdowns.[39] These are:

Cash-tenancy - The tenant pays a cash rent for another operator's land for a stipulated time of use.

Share-cash tenancy - The tenant pays a rent partly in farm products.

Share-tenancy- The tenant pays a rent entirely by a share in the farm products.

Crop-tenancy - The tenant is paid a portion of the crops or other farm products for working the farm. The landlord furnishes the implements, seeds, and closely supervises the tenant's work.

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[39] Bureau of the Census, United States Census of Agriculture: 1950, Volume I, "Counties and State Economic Areas," Part 16, North and South Carolina (Government Printing Office, Washington, D. C., 1952), pp XVIII-XIX.

These forms of tenancy have been presented as ranked by the Census Bureau. They present a decreasing order of economic and social standing. The ranking is by independence of operation and the proportion of profits accruing to the farm worker.

Tenancy does not have the same connotation in all areas of the country. In the South, tenancy implies a form of farm labor in which the laborer is paid off with a percentage of the crop. As the laborer brings more and more to the work, machinery and animals, his share is proportionately increased.[40] But through all of these phases he occupies the bottom of the economic scale. In the South tenancy is a simple device to obtain agricultural workers and is not operated as a stepping stone towards eventual ownership. This widespread practice stems from the production of a highly speculative single-crop with property rights for large tracts of land in the hands of an individual or a small group of investors.

This argument does not prohibit the use of a tenant data provided by the Census Bureau so long as the sociological significance is born in mind.

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[40] T. Lynn Smith, The Sociology of Rural Life (third edition; New York: Harper and Brothers, 1953), pp. 280-281.

[41] Ibid., p. 280.

It seems advisable to account for two possibilities in tenancy; crop tenancy and general tenancy. All tenants occupy low economic positions, and their presence in proportionally large numbers would be a significant gauge of economic level. Crop tenants occupying the lowest level of tenancy would be a more accurate measure of low economic level. In both cases tenancy must be considered for the white rural-farm population alone.

Data on tenancy are presented in the United States Census of Agriculture: 1950, Volume I, Part 16, Chapter B, Table 2a. A ratio of tenants to all farm operators was computed for each county. Data bearing upon the relationship between tenancy and fertility among white rural-farm people are presented in Table XXII. Column one contains the counties, column two the per cent of all white farm workers classified as tenants, and column three the effective fertility ratios of the white rural-farm population.

No relationship is discernable. There is a very wide variability in every interval of the tenancy scale. Counties showing equal tenancy ratios varied over 200 points in fertility performance. Either general tenancy is not an accurate measure of socio-economic level or socio-economic conditions are not related to fertility. It is possible that general tenancy is not satisfactory as it covers such a wide economic range.

Table XXII: Relationship Between Tenancy and Fertility Among the White Rural-Farm Population by County[1]

Counties	Per cent of white farmers classified as tenants	Effective fertility ratios white rural-farm population	Counties	Per cent of white farmers classified as tenants	Effective fertility ratios white rural-farm population
Dillon	62.3	684.4	Orangeburg	22.8	560.5
Marlboro	55.8	649.4	Greenville	22.7	430.1
Marion	52.6	641.4	Georgetown	22.6	716.5
Florence	49.9	667.6	Saluda	21.9	503.4
Horry	43.1	675.2	Allendale	21.1	430.7
Darlington	40.0	606.1	Laurens	20.4	422.9
Chesterfield	38.0	659.1	McCormick	20.1	479.6
Cherokee	35.0	528.3	Jasper	19.5	489.8
Clarendon	33.8	706.0	Hampton	19.0	596.8
Anderson	33.3	514.0	Edgefield	18.4	444.7
Bamberg	32.5	577.1	Colleton	15.9	463.5
Oconee	32.2	602.2	Union	15.0	437.5
Barnwell	31.8	598.2	Greenwood	15.0	407.0
Aiken	31.5	515.3	Newberry	13.6	430.9
Williamsburg	30.2	685.7	Lexington	13.6	570.1
Spartanburg	29.9	472.9	Chester	13.4	475.4
Pickens	29.7	527.4	Calhoun	13.4	457.9
Lee	27.1	548.8	Berkeley	11.7	620.4
York	24.0	537.8	Beaufort	11.7	497.5
Sumter	24.0	657.7	Dorchester	10.8	433.5
Abbeville	23.8	526.6	Richland	10.7	435.1
Kershaw	23.7	543.2	Fairfield	9.6	457.0
Lancaster	22.8	543.2	Charleston	7.7	502.6

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

This can be checked by using a measure which is based on crop tenancy. Data on crop tenancy were obtained from the same table in the 1950 Census of Agriculture and ratios of crop tenants of all farm operators were computed for each county.

Data bearing upon the relationship between white crop tenancy and the fertility of the white rural-farm population are presented in Table XXIII. Column one contains the counties, column two the per cent of white farmers classified as crop tenants, and column three the fertility ratios for the white rural-farm population.

No relationship of consequence was discovered. The over all sense was a loose vague relationship. The extremes of the scale do show a noticeable difference in fertility performance. But at each interval on the tenancy scale there was a strong scatter. The computation of a correlation measure was thought to be useless and was not undertaken.

The criticisms of the measure of general tenancy can be applied to the measure of crop tenancy. If tenancy is a poor measure, can any other measure be used to direct attention towards the underlying principle that fertility is related to the potential claims the farm worker can make upon the economic system? Beginning at the other end of the economic scale, the proportional farm ownership by farm

Table XXIII: Relationship Between Crop Tenancy and Fertility Among the White Rural-Farm Population by County[1]

Counties	Per cent of white farmers classified as crop tenants	Effective fertility ratios white rural-farm population	Counties	Per cent of white farmers classified as crop tenants	Effective fertility ratios white rural-farm population
Marlboro	29.4	649.4	Kershaw	8.5	605.6
Dillon	26.1	684.4	Saluda	7.0	503.4
Florence	23.4	667.6	Greenville	6.8	430.1
Darlington	23.3	606.1	Lancaster	6.1	543.2
Marion	17.4	641.4	Edgefield	6.0	444.7
Bamberg	17.2	577.1	Union	5.3	432.6
Chesterfield	16.6	659.1	Sumter	4.8	657.7
Cherokee	15.3	528.3	Calhoun	4.5	457.9
Horry	14.7	675.2	Greenwood	4.5	407.0
Anderson	13.6	514.0	Lexington	4.1	570.1
Barnwell	13.4	598.2	McCormick	4.0	479.6
Williamsburg	13.1	685.7	Chester	3.6	475.4
Clarendon	12.7	706.0	Newberry	3.5	430.9
Spartanburg	12.6	472.9	Colleton	2.6	463.5
Aiken	11.0	515.3	Hampton	2.6	596.8
Lee	10.7	548.8	Dorchester	1.9	533.8
Orangeburg	10.7	560.5	Fairfield	1.5	457.0
Oconee	10.6	602.2	Richland	1.4	435.1
Abbeville	9.9	526.6	Berkeley	1.2	620.4
Pickens	9.8	527.4	Charleston	1.0	502.6
Laurens	9.4	422.9	Jasper	1.0	489.8
Georgetown	8.8	716.5	Beaufort	0.4	497.5
York	8.6	537.8	Allendale	0.3	430.7

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

operators can be used as a measure. The 1950 United States Census of Agriculture contains data upon the number of farm owners per county in Table 2a of Volume I, Part 16, Chapter B. It is proposed that the proportion of farm owners to all paid farm workers will provide an adequate measure of economic potential. It is further proposed that the white rural-farm people in counties with high percentages of white farm owners will have lower fertility performances than those in counties with low percentages of farm owners.

Table XXIV, contains data bearing upon this proposal. In column one is listed the counties; in column two, the per cent of white farm owners of all paid white farm workers; and in column three, the effective fertility ratios of the white rural-farm population. An inverse relationship between farm ownership and fertility is discernable. As the per cent of farm ownership in the county declines the fertility of the rural-farm population tends to increase. The relationship seems to be constant through out although it is marked by a strong tendency to scatter. Scatter is least among those counties having 50 per cent or less of farm ownership. This is also true to a lesser degree among those counties having over 70 per cent of farm ownership. The interval 50-70 per cent is characterized by more scatter.

The evidence was sufficient to warrant the computation

Table XXIV: Relationship Between Full Ownership and Fertility Among the White Rural-Farm Population by County[1]

Counties	Per cent of white farmers classified as full owners	Effective fertility ratios white rural-farm population	Counties	Per cent of white farmers classified as full owners	Effective fertility ratios white rural-farm population
Fairfield	80.2	457.0	Kershaw	61.9	605.6
Greenwood	76.9	407.0	Spartanburg	60.2	472.9
Union	76.6	432.6	Sumter	59.8	657.7
Richland	75.8	435.1	Oconee	59.7	602.2
Charleston	74.5	502.6	Hampton	59.0	596.8
Chester	74.0	475.4	Anderson	56.7	514.0
Lexington	72.5	570.1	Williamsburg	55.9	685.7
Newberry	72.5	430.9	Cherokee	55.5	528.3
Greenville	69.4	430.1	Calhoun	55.2	457.9
Lancaster	69.4	543.2	Aiken	54.8	515.3
Laurens	67.5	422.9	Lee	52.2	548.8
Berkeley	67.3	620.4	Orangeburg	51.8	560.5
Colleton	66.8	463.5	Barnwell	50.4	598.2
Dorchester	66.8	533.5	Allendale	49.4	430.7
Abbeville	66.7	526.6	Horry	48.0	675.2
York	66.1	537.8	Darlington	47.6	606.1
Beaufort	65.6	497.5	Clarendon	46.8	706.0
Edgefield	65.0	444.7	Chesterfield	46.5	659.1
Pickens	64.7	527.4	Bamberg	44.9	577.1
Jasper	64.2	489.8	Florence	42.4	667.6
Georgetown	63.6	716.5	Marion	35.6	641.4
Saluda	63.6	503.4	Dillon	29.6	684.4
McCormick	63.5	479.6	Marlboro	27.0	649.4

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

of a correlation. This was done. It was expected that scatter would hold the correlation to a moderate strength. This was found to be true, as a correlation of 0.60 and a coefficient of alienation of 0.64 were obtained. Beyond any doubt white rural-farm fertility is inversely related to the economic potential of the people.

Another basic facet of this proposition is the capacity of the farm enterprise, the farm's economic possibilities as determined by the condition of the land and the agricultural organization. This characteristic can be extremely enlightening because it mirrors long-time conditions and practices which have come to be part and parcel of the prevailing outlook or state of mind of the inhabitants of the area. The significance of this factor for political behavior has been verified.[42] The image of over-worked farm land and dispirited people combining poverty and high fertility has, since the days of the depression, been alluded to by the social scientist, the author, and the reformer.[43]

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[42] Rudolf Heberle, The Sociology of Social Movements (New York: Appleton, Century, Crofts, Inc., 1951), Chapters 11 and 12.

[43] Alfred Griswold, Farming and Democracy (New York: Harcourt, Brace, Incorporated, 1948); Harold Hoffsomer, editor, The Social and Economic Significance of Land Tenure in the South Western States (Chapel Hill, North Carolina: The University of North Carolina Press, 1950); Arthur Raper, Preface to Peasantry (Chapel Hill, North Carolina: University of North Carolina Press, 1936); and Erskine Caldwell and Margaret Bourke White, You have seen Their Faces (New York: The Viking Press, 1937).

The previously mentioned study by Lively and Taeuber described the use of soil type areas as an index of socio-economic status. Their work demonstrates the validity of this index in population analysis.

South Carolina soil types have been plotted.[44] Soil type areas of course do not follow county lines and some belts are so thin that their consideration is precluded as an important influence in particular counties. An effort has been made to join counties into geographically reasonable areas. This has been done by combining similar soils into one unit and by placing counties by their major soil type. Figure 7, below, reproduces a combined form soil map by county for the state.

The major soil subdivisions partition the state into a Piedmont and a Coast Plain. The latter consists of original soil materials washed down off of the Piedmont and acted upon by water and water life when the Coast Plain was a part of the ocean floor. For the purpose of this study the several soil divisions of the Piedmont have been combined to form Upper and Lower Piedmont belts.

The Upper Piedmont includes Oconee, Pickens, Anderson, Greenville, Laurens, Spartanburg, Union, and Cherokee count-

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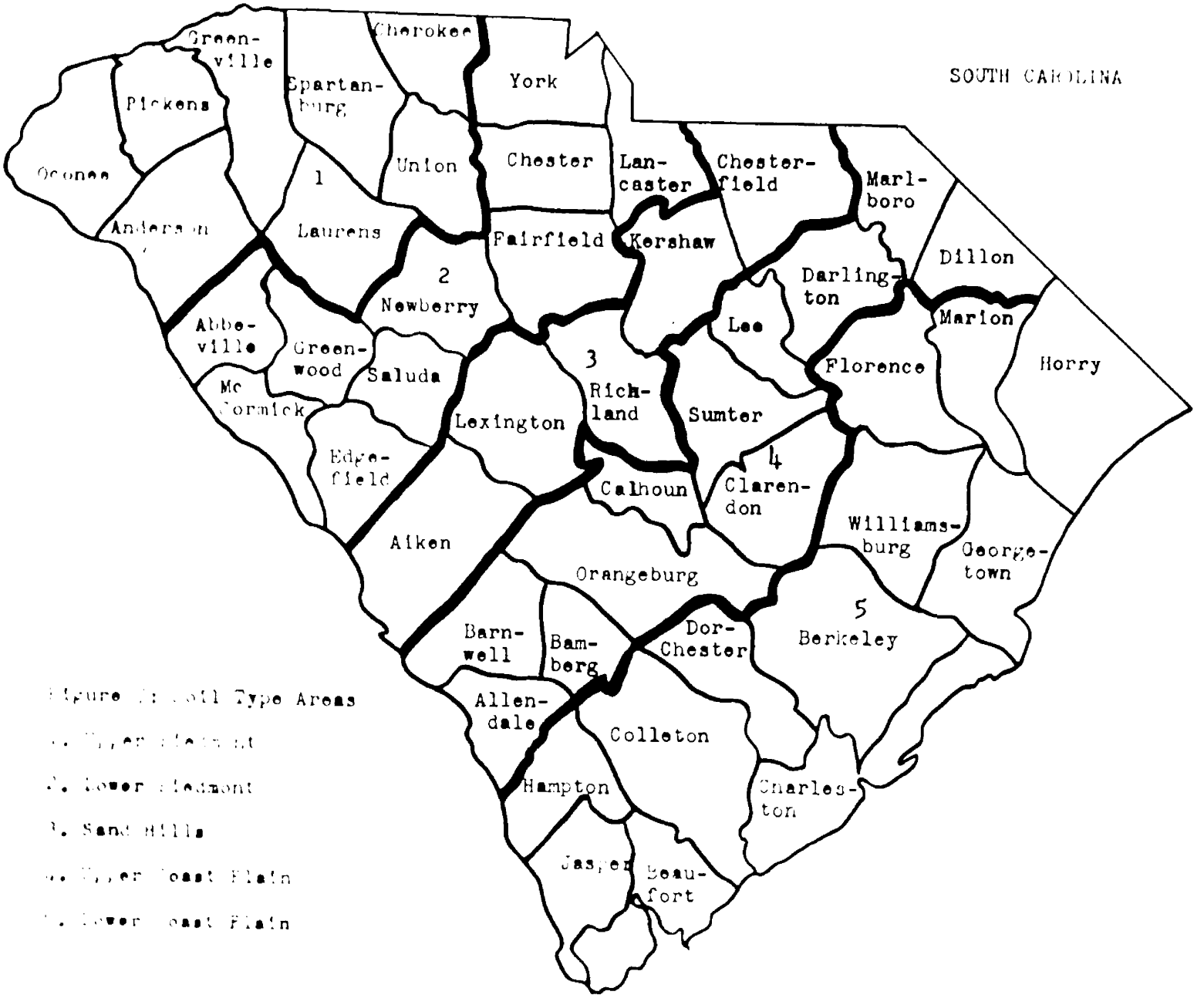
[44] J. L. Fulmer, Types of Farming and Farm Business Studies in South Carolina, South Carolina Agricultural Experiment Station Bulletin 310, Clemson, South Carolina, 1937, p. 12.


SOUTH CAROLINA
Green-
ville
Cherokee
Spartan-
burg
York
Pickens
Oconee
Union
Chester
Lan-
caster
Chester-
field
Marl-
boro
Anderson
1
Laurens
Fairfield
Kershaw
Dillon
Darling-
ton
2
Newberry
Lee
Marion
Abbe-
ville
Green-
wood
Saluda
3
Rich-
land
Florence
Horry
Mc
Cormick
Lexington
Sumter
Edge-
field
4
Calhoun
Claren-
don
Williams-
burg
Aiken
Orangeburg
George-
town
5
Berkeley
Barn-
well
Bam-
berg
Dor-
Chester
Allen-
dale
Colleton
Hampton
Charles-
ton
Jasper
Beau-
fort
Figure 1: Soil Type Areas
1. Upper Piedmont
2. Lower Piedmont
3. Sand Hills
4. Upper Coast Plain
5. Lower Coast Plain

ies. Its soils are Porter, Cecil, Appling, and Durham. Porter is the least significant as it is limited to the extreme western mountainous area. It is essentially fertile but steep slopes prevent full cultivation. The bulk of the area is Cecil, Appling, and Durham soils. Their common name is red clay hill. They are fertile and their drainage is good. Diversified agriculture is practiced and "a good to high standard of living is maintained."[45] The crop currently produced is that best adapted to the area, and the soils can be kept at their present level or improved.

The Lower Piedmont consists of Cecil, Appling, Durham, Iredell, Mecklenburg, Davidson, Georgeville, Herndon, and Alamance soils. Iredell, Mecklenburg, and Davidson soils are heavier with clay, have more lime and less potash than the others. The last three soils show traces of slate and white quartz and are moderately strong in acid. Such soils are best for lespedeza production. This is a less profitable farming area than the Upper Piedmont.

The Sand Hill area's soil is as the name indicates composed of sand and sandy loam. There is little nutriment value and great acidity in it. The soil types are Norfolk,

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[45] United States Department of Agriculture, Soils and Men: Yearbook of Agriculture: 1938 (Government Printing Office, Washington, D. C., 1938), p. 1060.

Ruston, and Portsmouth. However, there are interstitial areas of, "the best agricultural soil of the Coast Plain."[46] Agricultural prospects are poor. "By far the greater part of the Norfolk sands should be reforested or used for wildlife or recreation purposes. Only the smooth areas and those where the sandy clays are near the surface should be farmed."[47]

The Upper Coast Plain area is composed of Norfolk, Ruston, Orangeburg, Marlboro, Kalemia, Red Bay, Greenville, and Tifton soils. Norfolk and Ruston are the predominant soils. The land is flat and permits intensive agriculture. The soils are sandy loam, medium strong in acidity, and have little organic matter. However, the land is so amenable to farming that granting the use of fertilizer they, "produce the most profitable crops of any soils in the South."[48]

The Lower Coast Plain soils are composed basically of Coxville, Bladen, and Portsmouth soils. The land is flat, preserves original ocean floor features, and is spotted with swamps, bogs, and sand bars. Farming is impeded by aeration and drainage, and the area is under-developed. With artifical drainage the soil is fairly good for farming.

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[46] Ibid., p. 1071.

[47] Ibid., p. 1072.

[48] Ibid., p. 1070.

Several predictions can be made about the fertility of the people farming in these soil types. Good soil types and consequent high levels of living should be associated with low fertility while poor soil areas should be reflected in high fertilities. Thus, the Sand Hills and the Lower Coast Plain farmers should have high fertility. The farm people of the other three areas should have low fertility.

Data bearing upon the relationship between soil type areas and the fertility of the white rural-farm people are presented in Table XXV. Column one contains the soil type areas and counties, column two contains the effective fertility ratios of the white rural-farm population. The average fertility differs by soil type area. The lowest ratio is in the Lower Piedmont. Only slightly higher is the Upper Piedmont ratio of 491.3. Significantly higher is the Sand Hill area with a fertility ratio of 557.0. The residents of the two Coast Plain areas exhibit the highest fertility ratios. These are virtually identical being 582.0 for the Lower Coast Plain and 588.8 for the Upper Coast Plain. Neither are significantly different from the ratios of the residents of the Sand Hill area.

The fertility performances do not follow the proposed patterns. The Lower Piedmont residents have a slightly lower fertility than the residents of the Upper Piedmont although the soil of their area is not as good. The residents of the Upper Coast Plain have a fertility of equal

Table XXV: Relationship Between Soil Type Areas and the Fertility of the White Rural-Farm Population[1]

Soil type areas and counties	Effective fertility ratios white rural-farm population	Soil type areas and counties	Effective fertility ratios white rural-farm population
Upper Piedmont	491.3	Upper Coast Plain	588.8
Oconee	602.2	Clarendon	706.0
Cherokee	528.3	Dillon	684.4
Pickens	527.4	Sumter	657.7
Anderson	514.0	Marlboro	649.4
Spartanburg	472.9	Darlington	606.1
Union	432.9	Barnwell	598.2
Greenville	430.1	Bamberg	577.1
Laurens	423.9	Orangeburg	569.5
		Lee	548.8
Lower Piedmont	480.6	Calhoun	457.9
Lancaster	543.2	Allendale	430.7
York	537.8		
Abbeville	526.6		
Saluda	503.4	Lower Coast Plain	582.2
McCormick	479.6	Williamsburg	716.5
Chester	475.4	Horry	675.2
Fairfield	457.0	Florence	667.6
Edgefield	444.7	Marion	641.4
Newberry	430.9	Berkeley	620.4
Greenwood	407.0	Hampton	596.8
		Dorchester	533.5
Sand Hills	557.0	Charleston	502.6
Chesterfield	659.1	Beaufort	497.5
Kershaw	605.6	Jasper	489.8
Lexington	570.1	Colleton	463.5
Aiken	515.3		
Richland	435.1		

1. J.L. Fulmer, Types of Farming and Farm Business Studies in South Carolina, South Carolina Agricultural Experiment Station Bulletin 310, Clemson, South Carolina, 1937, p. 12; and Table I, Appendix A.

size with the residents in the Lower Coast Plain despite their better soil. In the latter case this condition is understandable when it is recalled that tenancy is high in this area.[51] The richness of the land is not retained by those who work it. This also explains the imbalance in fertility and soil richness in the Upper and Lower Piedmont areas.

The concept of soil type was introduced in tracing the general theme of a relationship between economic potential and fertility. An inverse relationship has been determined in terms of ownership of production means. Those counties with proportionately large ownership had lower fertilities than counties with proportionately low ownership. The economic potential of the farm is orginally determined by the quality of the soil. Can these factors be combined? Would breaking the soil types down by proportion of ownership explain the division within soil type areas?

In Table XXVI the data support the proposition in part. In all three soil type areas in which a division had been seen, the split was partially explainable in terms of ownership. The division with high fertility showed lower proportional ownership of farms than did the division with low fertility. But as individual counties did not stand in direct relationship and the differences between averages were

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[51] See Tables XXII and XXIII, this Chapter.

Table XXVI: Relationship Between Selected Soil Type Areas, Land Ownership, and the Fertility of the White Rural-Farm Population[1]

Soil type areas and counties	Per cent of white farm ownership	Average per cent of white farm ownership	Effective fertility ratios white rural-farm population
Upper Coast Plain			
Clarendon	46.8		706.0
Dillon	29.6		684.4
Sumter	59.8		657.7
Marlboro	27.0	44.7	649.4
Darlington	47.6		606.1
Barnwell	50.4		598.2
Bamberg	44.9		577.1
Orangeburg	51.8		560.5
Lee	52.2		548.8
Calhoun	55.2	52.3	457.9
Allendale	49.4		430.7
Lower Coast Plain			
Williamsburg	55.9		716.5
Horry	48.0		675.2
Florence	42.4	51.4	667.6
Marion	35.6		641.4
Berkeley	67.3		620.4
Hampton	59.0		596.8
Dorchester	66.8		533.5
Charleston	74.5		502.6
Beaufort	65.6	67.6	497.5
Jasper	64.2		489.8
Colleton	66.8		463.5
Sand Hills			
Chesterfield	46.5		659.1
Kershaw	61.9	60.3	605.6
Lexington	72.5		570.1
Aiken	54.8	65.3	515.3
Richland	75.8		435.1

1. Abstracted from Tables XXIV and XXV.

not large, other factors must intervene.

Of real importance is the relationships between counties within and between soil type areas. In the Lower Coast Plain area Colleton, Jasper, Beaufort, Charleston, and Dorchester counties show much lower fertility than those counties in the northern section of the area. Although the breaking point is more obscure, a similar division occurs in the Upper Coast Plain area. A southern sector consisting of Allendale, Calhoun, and Lee counties shows fertility ratios significantly lower than those for the others of the area. The southern sections of both Coast Plain areas seem united in fertility as do the northern sections.

As previously mentioned, the basic soil type division is between the Coast Plain and the Piedmont. The line of demarcation is the fall line, the original coastline, which is the current Sand Hills area. While it is the soil type breaking point, it is most closely associated with the Coast Plain area in fertility performance. Again the twofold split into northern and southern sections occurs. The northern section is made up of Chesterfield and Kershaw counties. Their fertilities definitely ally them with the Coast Plain areas.

Definite breaks are not found in the two Piedmont areas. In the Lower Piedmont area there is a tendency towards a north-south split with Lancaster and York counties

having higher than average fertility. However, they are joined by Abbeville in the far southern corner. In the Upper Piedmont only Oconee County stands out in definite opposition.

The conclusion drawn from this table is that soil type is not independently important. Average inter-area differences while significant are less important than intra-area differences. The former appears to be a product of the latter. The independent classification by soil type does not appear to be logical.

The clear groupings of counties and the insight from Table XV direct attention immediately to variations in farming economy. What basic socio-economic differences separate the people in these areas? Will these groupings arrange themselves along certain socio-economic continua in accordance with their divergent fertility?

State Economic Areas Related to the Fertility of the White Rural-Farm Population

It is possible to approach this problem through the use of state economic areas defined by the United States Bureau of the Census and used by it to present certain data in the 1950 Census of Agriculture. The consideration of state economic areas does not divert from the objectives of this study. The data so far examined in the chapter have shown themselves to fall logically into these economic

areas. The economic areas can now be used as first grounds for testing the importance of given socio-economic factors.

The original work in the establishment of state economic areas was reported in State Economic Areas.[49] Within each state two standard sets of areas are presented - one for agricultural and the other for non-agricultural data. In South Carolina both sets coincide. The state economic areas were determined in this fashion. A review of previous studies led to the delineation of tentative economic areas. Statistics were gathered from data in the censuses of 1940 and 1945, and the accuracy of the areas was determined.

The statistics considered in the checking for agricultural areas included the following:

I. Social level indexes of the rural population.
II. General characteristics of the agricultural economy.
III. Type of farm composition.
IV. Agricultural income.
V. Value of farm products.
VI. Crops and yields.
VII. Livestock production.

The tentative boundaries were accepted or reformed on the basis of this statistical analysis. The report presented for these areas tables of statistics obtained from previous census reports. These present quick, clear insights, and analysis in this study can begin with them.

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[49] Donald Bogue, State Economic Areas (Government Printing Office, Washington, D. C., 1951).

Figure 8, reproduces the State Economic Areas for South Carolina as delineated by the United States Bureau of the Census.

It must first be established that there is a significant fertility variation between the State Economic Areas. The computation of county effective fertility ratios for the areas is easily accomplished by reference to the original county computations in Table II, Appendix A. The relationship between the State Economic Areas and the fertility of the white rural-farm population is shown in Table XXVII. Column one contains the counties grouped by State Economic Areas and column two contains the effective fertility ratios of the white rural-farm population.

Similar fertility performances are not found within all of the State Economic Areas. In Area 1 the difference between the fertilities in the two counties is 74.8 points which is not overly large. A slightly larger difference is found in Area 2 where 107 points separate Anderson and Greenwood counties. Approximately the same gulf if found in Areas 3, 4, and 5. Serious differences are found in Areas 6 and 8. In Area 6 Clarendon is separated by 275.3 points from Allendale, and in Area 8 Georgetown is separated by 253 points from Colleton. There is little variation in Area 7 where Williamsburg and Marion are separated by only 44.3 points.

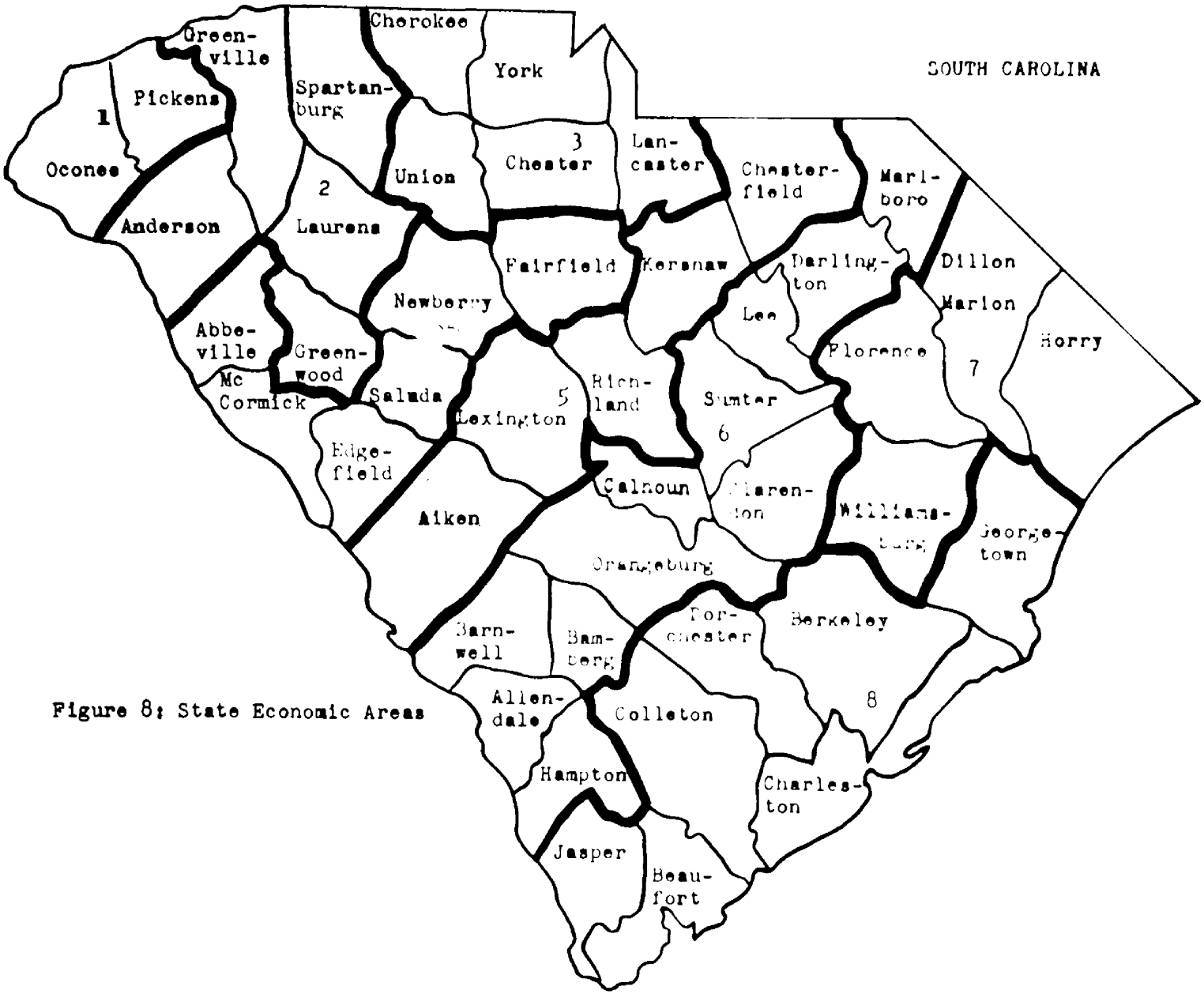

Figure 8: State Economic Areas

Table XXVII: Relationship Between State Economic Areas and the Fertility of the White Rural-Farm Population[1]

State Economic Areas and counties	Effective fertility ratios white rural-farm population
Area 1	
Oconee	602.2
Pickens	527.4
Average	564.1
Area 2	
Anderson	514.0
Spartanburg	472.9
Greenville	430.1
Laurens	422.9
Greenwood	407.0
Average	462.9
Area 3	
Lancaster	543.2
York	537.8
Cherokee	528.3
Chester	475.4
Union	432.6
Average	515.4
Area 4	
Abbeville	526.6
Saluda	503.4
McCormick	479.6
Fairfield	457.0
Edgefield	447.1
Newberry	430.9
Average	473.9
Area 5	
Chesterfield	659.1
Kershaw	605.6
Lexington	570.1
Aiken	515.3
Richland	435.1
Average	578.4
Area 6	
Clarendon	706.0
Sumter	657.7
Marlboro	649.4
Darlington	606.1
Barnwell	598.2
Hampton	596.8
Bamberg	577.1
Orangeburg	560.5
Lee	548.8
Calhoun	457.9
Allendale	430.7
Average	596.6
Area 7	
Williamsburg	685.7
Dillon	684.4
Horry	675.2
Florence	667.6
Marion	641.4
Average	672.2
Area 8	
Georgetown	716.5
Berkeley	620.4
Dorchester	533.5
Charleston	502.6
Beaufort	497.5
Jasper	489.8
Colleton	463.5
Average	551.5

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C.,1951), Table B; and Table I, Appendix A.

How is this problem to be handled? The State Economic Areas classification offers a wealth of material in easily available form. At the same time not all of the areas are marked by similarity in fertility performances among the white rural-farm population. It was decided to proceed with the use of the state economic areas because in each case the counties with the varying fertility performance are in the minority. Their weight should not be sufficient to detract from the over-all proposed relationships.

Two immediate lines of investigation are available. The original statistics presented in the State Economic Areas can be used in analysis. Also, the 1950 census of Agriculture data can be used. The former adds a new dimension to the study because it makes possible the consideration of social and economic factors current at the beginning of the fertility measurement period. The latter data will make possible the consideration of the current picture and may be particularly valuable in considering the atypical counties.

There also are two approaches to each set of data. Consideration can be given to the entire gamut of data presented in the delimitation or in the statistical compilations. On the other hand consideration can be given to those factors theoretically significant to the problem of fertility causation. The latter is time and energy conserving. The former seals off all loopholes. Practicality

dictates the use of the theoretical factors.

To begin, a summary of theoretically related economic, social, and demographic factors must be marshalled from the various points of their mention in this study. The basic economic proposition is a decrease in fertility with an increase in economic position. The presumption is that the economic burden of children reduces the chances for obtaining or maintaining a desired socio-economic status and consumption level. The number of children is therefore, limited. The high fertility of the poor or lower class is a reflection of their denial of status aspiration. With no chance of status advancement and a low standard of living, children are not a liability. In like fashion high socio-economic status level persons show a raised fertility because their status is secure, and their economy sufficient to incorporate larger numbers of children.[50] The basic problem in studying socio-economic factors has been obtaining or defining exact indexes of status and obtaining them for sufficiently refined units of fertility analysis. The design of this study and tha availability of data relating to fertility have precluded the latter factor.

Innumerable indexes of economic factors and statuses

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[50] It appears that more attention should be turned towards the motivation arising from a desire to retain rather than obtain a social status.

have been developed and can be used with available data. These have been considered previously and can be merely listed here. They are:

I. Condition of the general farm economy.

II. Control over rewards of farm enterprise.

III. Level of living.

Social factors include the general cultural definitions on the desirability of children, large families, close family life, and extended family groupings which are correct in the community or within recognized groupings within the community. Such community groupings include generations, religious bodies, nationalities, races, regions, residential units, and friendship and clique groupings. For extensive groups such as the county these factors can be difficult to isolate. Four social factors; religious bodies, nationalities, races, and regions are to a large extent held as constants in this study.

Demographic factors have not been considered but could be. Fertility is directly related to age, the sex ratio, and marital status. The influence of these factors upon fertility in the South in general has been commented upon previously.[51]

The analysis was begun with the data from the States

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[51] Vance, All of These People, p. 101.

Economic Areas. Immediately a serious limitation of the data is noted. No consideration of race has been given. All data are for the total population of the areas. The inaccuracies incident to non-separation were reported in earlier sections of this study. The social and economic circumstances of the Negro are not necessarily that of the white, and the sectional imbalance of the races further complicates obtaining a clear picture.

The insights into the conditions of the general farm economy available in data presented in State Economic Areas include:

I. Size of farms.
II. Number of crop acres harvested.
III. Value of farm lands and buildings.
IV. Value of farm products.
V. Value of machinery and implements.

Further data from this source permit insight on the division of farm resources and revenue. These are:

I. Farm operators classified as owners.
II. Farm operators classified as croppers.
III. Number of farms reporting paid cash wages of $200 or more.

The influence of non-agricultural economy can be traced with an index based on the number of farm operators re-

porting 100 or more days of off-farm work.

Data are also available for insight into the level of living of the rural-farm people. The available data include:

I. Number of farms with running water.

II. Number of farms wired for electricity.

III. Number of farms having a telephone.

IV. Number of farms with tractors.

V. Number of farms with automobiles.

These data were formed into convenient indexes and related to white rural-farm fertility in the following set of tables.

Table XXVIII shows the relationship existing between the average size of farms in the State Economic Areas and the fertility of the white rural-farm population of the Areas. Column one contains the State Economic Areas, while column two contains the average size of farms in acres, and column three the effective fertility ratios of the white rural-farm populations. It is presumed that the larger the average size of farms the lower will be the fertility of the white rural-farm residents because larger farms are taken to indicate a higher socio-economic level of living and expectation.

A general inverse relationship is found to exist. As the average size of farms increases the white rural-farm fertility declines. One serious exception exists. Area 2,

Table XXVIII: Average Size of Farms in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Average size of farms in 1945 in acres	Effective fertility ratios white rural-farm population	Rank by size of farms	Rank by fertility
Area 1	68.1	564.1	3	5
Area 2	61.3	462.9	2	1
Area 3	83.9	515.4	6	3
Area 4	99.4	478.9	8	2
Area 5	89.7	578.4	7	6
Area 6	78.0	596.6	4	7
Area 7	53.5	672.2	1	8
Area 8	82.4	551.5	5	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Table XXIX: Average Number of Crop Acres Harvested in 1944 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Average number of crop acres harvested in 1944	Effective fertility ratios white rural-farm population	Rank by average crop acreage	Rank by fertility
Area 1	21.8	564.1	2	5
Area 2	26.4	462.9	4	1
Area 3	25.8	515.4	3	3
Area 4	28.3	478.9	5	2
Area 5	31.2	578.4	6	6
Area 6	38.1	596.6	7	7
Area 7	21.8	672.2	2	8
Area 8	20.6	551.5	1	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

an area of small sized farms, has a low fertility ratio. Area two is in the Upper Piedmont. It is a highly industrialized sector of the state and a possible relationship between this factor and the low fertility will be checked with a later index. It is further noted that two sets of State Economic Areas appear as a natural break-down in this table. Areas 7, 6, and 5 exceed the others in fertility while within themselves they exhibit the described inverse relationship. These areas lie in the Upper Coast Plain, the Interior Coast Plain, and the Sand Hill areas, respectively. The other Areas, 1, 8, 3, and 4, exhibit the described relationship. These areas are the Lower Coast Plain and the Piedmont, respectively. It is concluded that the relationship exists. However, some as yet undetermined factor exerts an influence within this system of classification.

Table XXIX depicts the relationship between the average number of crop acres harvested in 1944 and the fertility of the white rural-farm population. It is assumed that as the average crop acreage goes up the fertility will decline because crop acreage is assumed to give direct insight into the economic level of the average farm enterprise of the area. Column one contains the State Economic Areas, column two the average crop harvest in acres, and column three the effective fertility ratios of the white rural-farm population of the area. No understandable relationship can be discerned. Areas 5 and 6 are grouped together and show a

step-like increase in fertility with increases in average harvested acreage. Areas 1, 7, 3, 2, and 4 show an abrupt decrease in fertility with an increase in crop acreage. Area 8 is isolated and no relationship can be inferred from it.

Areas 5 and 6 are possibly explainable in terms of being high tenancy areas in which all available lands are cultivated, but low rewards are passed on to the tenant operators. Areas 1, 7, 3, and 2, as possible low tenancy areas, exhibit the expected relationship. The sharp drop in fertility from Areas 1 and 7 to areas 3, 2, and 4 made this explaination rather hazardous, although it will be checked with later indexes. It seems that it is more logical to say that crop acres harvested is not so important as the value of the crop which is harvested. For example, Area 7 is the tobacco area and as this crop must be hand set and picked crop acreage is small. This can not, at the present, be checked, and it seems advisable to drop the index as a poor and inconclusive measure.

Table XXX shows the relationship existing between the average value of farms in terms of lands and buildings and the fertility of the white rural-farm population within the State Economic Areas. It is presumed that the value of the buildings and the lands is a direct index of economic well-being. Therefore the fertility of the white rural-farm population should be inversely related to this value.

Table XXX: Average Value of Farms and Buildings in Dollars in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Average value of farms and buildings in dollars	Effective fertility ratios white rural-farm population	Rank by value of farms and buildings	Rank by fertility
Area 1	2716.75	564.1	2	5
Area 2	3500.52	462.9	8	1
Area 3	2721.38	515.4	3	3
Area 4	2726.72	478.9	4	2
Area 5	2858.42	578.4	5	6
Area 6	3044.60	596.6	6	7
Area 7	3078.96	672.2	7	8
Area 8	2427.64	551.5	1	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Table XXXI: Average Value of Farm Products in Dollars in 1944 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Average value of farm products in dollars	Effective fertility ratios white rural-farm population	Rank by value of farm products	Rank by fertility
Area 1	1059.67	564.1	1	5
Area 2	1327.03	462.9	5	1
Area 3	1232.13	515.4	4	3
Area 4	1189.59	478.9	3	2
Area 5	1665.27	578.4	6	6
Area 6	1920.57	596.6	7	7
Area 7	2325.56	672.2	8	8
Area 8	1139.90	551.5	2	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Column one contains the State Economic Areas, column two the average value in dollars of the farm lands and buildings, and column three the effective fertility ratios of the white rural-farm population. The data in the table fall into two natural groupings as in Table XXVIII. State Economic Areas 1, 3, 4, and 2 show a gradual decline in fertility with a gradual increase in the value of the average farm enterprise. Areas 5, 6, and 7 are collected at the high value end of the table, and show a direct relationship between farm value and fertility. As farm value increases fertility increases. This is the opposite from the expected inverse relationship. Area 8, the Lower Coast Plain, stands alone. The first grouping of Areas constitute the Piedmont. The second grouping is composed of the Upper and the Interior Coast Plain and the Sand Hill areas.

It seems most logical at this time to attribute the reversal in fertility pattern to the prospect of sharing in the revenue of the farm enterprise. In this case the increased value of the farm land in the second grouping would not be realized by the tenant operators. Support is given this position by the gradual decline in the fertility exhibited by the farm people in the first grouping. This is a possibility for later investigation.

Tables XXXI and XXXII enable a continuation of the line of investigation commenced in Table XXIX. They introduce in-

dexes based on the values of farm products in 1944 and of current farm implements and machinery. With both indexes it is proposed that rising values are directly associated with rising levels of economic well-being. The relationship between the indexes and the fertility of the white rural-farm population is proposed to be an inverse one. The higher the economic well-being the lower the fertility performance is expected to be.

The data in Table XXXI show the bi-areal breakdown. State Economic Areas 5, 6, and 7 exhibit a direct relationship between value of the farm enterprise and the fertility of the white rural-farm population. Areas 1, 8, 4, 3, and 2 show an inverse relationship.

In Table XXXII the two-fold breakdown again occurs. But in both sections an inverse relationship between the variables is maintained. Areas 7, 1, 3, 8, 4, and 2 show a progressive decline in fertility with increases in the average values of farm machinery and implements. Areas 6 and 5 show very high fertility ratios with the highest farm implement and machinery values in the state. Within themselves they do show the decline in fertility with a value increase.

The data in both tables are intelligable if consideration is given to farm tenure. In those areas characterized by farm ownership, increases in farm values are accompanied by decreases in fertility performances. On the other hand, fertility increases as farm values increase in those areas char-

Table XXXII: Average Value of Machinery and Implements in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Average value of farm machinery and implements in dollars	Effective fertility ratios white rural-farm population	Rank by value of machinery and implements	Rank by fertility
Area 1	233.67	564.1	2	5
Area 2	302.18	462.9	6	1
Area 3	250.07	515.4	3	3
Area 4	287.09	478.9	5	2
Area 5	347.06	578.4	8	6
Area 6	325.50	596.6	7	7
Area 7	219.14	672.2	1	8
Area 8	252.26	551.5	4	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

acterized by tenancy and cropping. In the first areas benefits accrue to the farm operators and they are influenced by them. In the latter areas the benefits are not retained by the farm operators and they are not influenced by them. These deductions are based upon an earlier analysis of farm tenure's influence upon the fertility of the white rural-farm population. The impression gained from that analysis indicates that those counties constituting State Economic Areas 5, 6, and 7 exhibited low ratios of farm ownership and high rates of crop tenancy. At this point it is necessary to demonstrate that this impression is factual.

Table XXXIII contains data bearing upon the relationship between the per cent of farm operators owning their farms and the fertility of the white rural-farm population. It is presumed that this index gives insight into the control and receipt of farm revenue, and that the latter is inversely related to fertility performance. As farm ownership increases fertility is expected to decline. In the table, column one contains the State Economic Areas, column two the per cent of farm owners, and colum three the fertility of the white rural-farm population.

Areas 6 and 7 are shown to have the lowest percentages of farm ownership. They are respectively about 35 and 36 per cent. They also have the highest fertilities being respectively 581 and 671. Separated from this grouping by about 10 to 12 percentage points are Areas 3, 4, and 2 whose

Table XXXIII: Per Cent of Farm Operators Classified as Owners and Managers in 1944 Related to the Fertility of the White Rural-Farm Fertility by State Economic Areas[1]

State Economic Areas	Per cent of farm operators classified as owners and managers	Effective fertility ratios white rural-farm population	Rank by per cent of owners and managers	Rank by fertility
Area 1	51.4	564.1	6	5
Area 2	47.9	462.9	5	1
Area 3	44.8	515.4	3	3
Area 4	45.4	478.9	4	2
Area 5	53.6	578.4	7	6
Area 6	35.1	596.6	1	7
Area 7	35.7	672.2	2	8
Area 8	75.5	551.5	8	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Table XXXIV: Per Cent of Farms Reporting Two Hundred Dollars or More Paid in Cash Wages in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Per cent of farms paying two hundred dollars or more in cash wages	Effective fertility ratios white rural-farm population	Rank by per cent paying wages of two hundred dollars or more	Rank by fertility
Area 1	4.1	564.1	1	5
Area 2	8.2	462.9	4	1
Area 3	6.7	515.4	2	3
Area 4	7.1	478.9	3	2
Area 5	13.1	578.4	5	6
Area 6	20.3	596.6	6	7
Area 7	28.9	672.2	7	8
Area 8	13.1	551.5	5	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

per cent of farm ownership are about 45, 45, and 48 respectively. Their fertilities are low, being 503, 474, and 449, respectively. However, Areas 1, 5, and 8 have both higher ownership ratios and higher fertility ratios. Their fertility is similar to that in Area 6. If these data are examined with those in Table XXVIII an explanation is found for the divergent behavior exhibited in these tables. Areas 7 and 6 have combined characteristics of low ownership ratios and small acreage farm size. Areas 3, and 4 exhibit both moderate ownership and large farm size. Finally Areas 1 and 8 show high ownership ratios and moderate farm size. The white rural-farm populations in Areas 7 and 6 are highly fertile; those in Areas 1 and 8 are moderate; while those in Areas 3 and 4 have low fertility. The performances in Areas 2 and 5 are not explainable.

It is advisable, therefore, to consider another index of the reward distribution system. The unsatisfactoriness of the tenancy classification system used by the Bureau of the Census has been pointed out. Its use in this study has not been satisfactory. As a result a new index has been decided upon. It is an index of the number of farms which have reported the payment of $200 or more in wages during the last year. It is a reported fact that the southern farm economic system is frequently characterized by juggling the farm worker back and forth between the status of cropper and wage laborer depending upon the prevailing market

conditions. If risk is involved, the worker is made to assume a part of it and becomes a cropper. If high prices are certain, he is made a wage worker and prevented from sharing in the profits. Also the introduction of farm mechanization results in a need for fewer croppers and more wage laborers.[52] This is perhaps the best measure of the extent of the current disenfranchisment of the farm population. The relationship proposed to guide the analysis is the same. Fertility is inversely related to socio-economic status. Areas with high rates of farms reporting paid wages should have a higher fertility than those having low rates.

Table XXXIV contains data bearing upon this proposed relationship. Column one contains the State Economic Areas, column two contains the per cent of farms reporting paid wages of $200 or more, and column three, the effective fertility ratios of the white rural-farm population. The expected direct relationship occurs. Areas 3, 4, and 2 show low percentages of paid farm wages which are respectively about 7, 7, and 8 per cent. They have low fertility rates which are respectively about 515, 479, and 463. Areas 5 and 8 are intermediate in performance. In both areas about 13 per cent of the farms reported paid wages. The fertility performances of their white rural-farm residents are re-

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[52] Smith, The Sociology of Rural Life, pp. 294-295; and Lowery Nelson, Rural Sociology (New York: American Book Company, 1948), pp. 251-252.

spectively about 578 and 551. Areas 6 and 7 have high percentages of paid wages. They are respectively about 20 and 29 per cent. Their respective fertilities are 597 and 672.

These considerations support the foregoing discussion. The high fertility performance by the white rural-farm people in Area 5 is partially explained by its moderate rate of employment of wage workers.

These findings can be reduced to two statements. The fertility of the white rural-farm population is inversely related to the population's control of the reward distribution system. And, where farm ownership prevails, the fertility of the white rural-farm population is inversely related to the value of the farm enterprise.

One more possibility within the economic frame of reference can be pursued. Limitation of fertility is assumed to mirror the acceptance of a high level of living in terms of goods and services and the curtailment of a major obstacle, children, in the attaining and retaining of this desirable level. Is the fertility of the white rural-farm population in South Carolina inversely related to its level of living?

Data to analyse this proposition are available in <u>State Economic Areas</u> as earlier reported. These include:

I. Number of farms with running water.

II. Number of farms wired for electricity.

III. Number of farms having a telephone.

IV. Number of farms with tractor(s).

V. Number of farms with automobile(s).

These are all factors from which suitable indexes have been made in numerous researches cited in an earlier section of this study. In each case the data were converted into indexes by computing their proportional appearance or absence among the farm residences for each State Economic Area. They were then arrayed in tabular form so that their presence or absence, taken as an indicator of socio-economic status, was related to the fertility of the white rural-farm population of the Area. These relationships are presented in Tables, XXXVI, XXXVII, XXXVIII, XXXIX, and XXXX.

The form of the table is the same for each of the five indexes. Column one contains the State Economic Areas, column two the index ratio for each area, and column three the effective fertility ratios for the white rural-farm population. The rank positions of the Areas by the index and by fertility performances are contained in columns four and five, respectively.

The data in Table XXXV are assembled specifically to analyze the relationship between the per cent of farm residences possessing running water and the fertility of the white rural-farm population of the Area. The index is presumed to infer the average socio-economic level of the Area's

Table XXXV: Per Cent of Farms Reporting Running Water in Dwellings in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas

State Economic Areas	Per cent of farms reporting running water in the dwelling	Effective fertility ratios white rural-farm population	Rank by per cent reporting running water	Rank by fertility
Area 1	12.9	564.1	5	5
Area 2	19.6	462.9	8	1
Area 3	12.8	515.4	4	3
Area 4	13.5	478.9	6	2
Area 5	17.3	578.4	7	6
Area 6	10.6	596.6	3	7
Area 7	7.3	672.2	1	8
Area 8	9.7	551.5	2	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C.,1951), Table B; and Table I, Appendix A.

Table XXXVI: Per Cent of Farms Reporting Electricity in the Farm Dwelling in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Per cent of farms reporting electricity in the dwelling	Effective fertility ratios white rural-farm population	Rank by per cent reporting electricity	Rank by fertility
Area 1	49.3	564.1	7	5
Area 2	59.8	462.9	8	1
Area 3	39.0	515.4	6	3
Area 4	31.7	478.9	4	2
Area 5	36.5	578.4	5	6
Area 6	21.7	672.2	3	7
Area 7	28.8	672.2	3	8
Area 8	21.4	551.5	1	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

people. The data in the table show a natural breakdown into two groupings. One grouping includes Areas 7, 6, 1, and 5; the other includes Areas 8, 3, 4, and 2. The first grouping consists of the Upper and Interior Coast Plain areas, the Piedmont-Mountain Area, and the Sand Hill area. The second grouping contains the Piedmont and Lower Coast Plain areas. Within each grouping an inverse relationship exists between socio-economic status and white rural-farm fertility. An orderly progression occurs throughout. On the basis of this index a clear inverse relationship is evident. However, it is also clearly shown that some other factor or factors are of equal performance. Is this same proposition supported by the insights provided by the other of socio-economic status?

In Table XXXVI are assembled data bearing on the relationship between the per cent of farm residences wired for electricity in an Area and the fertility of the white rural-farm residents of the Areas. It is inferred that possession of electricity is direct evidence of socio-economic status. No relationship was found. Moderate and high fertility prevails in the Areas at either end of the socio-economic scale. No form of continuity can be found. Perhaps the program of rural electrification has overcome some socio-economic differences.[53]

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[53] Bureau of Human Nutrition and Home Economics, Rural Family Living Charts (United States Department of Agriculture, Washington, D.C., 1952), Chart 19, pp. 50-51

Table XXXVII contains data bearing upon the relationship between the per cent of farm dwellings reporting a telephone and the white rural-farm population's fertility by State Economic Areas. It is presumed that the possession of telephones is directly related to socio-economic status. The pattern observed in Table XXXV is repeated in this table. Two natural groupings appear. In each there is an inverse relationship between socio-economic status and white rural-farm fertility. The progression is uniform throughout. The data from the two tables corroborate each other.

Table XXXVIII presents data on the relationship between per cent of farms reporting a tractor(s) and the fertility of the white rural-farm population by State Economic Areas. It is presumed that the proportional reporting of tractors is a direct index of the average socio-economic level of the Area. For a third time a natural subdivision into two groupings appears within the data. Both groupings contain the same State Economic Areas as before. In both an inverse relationship between socio-economic status and white rural-farm fertility is maintained. It is a consistent progression throughout the table. The findings stand in line with those from Tables XXXV and XXXVII.

Table XXXIX sets forth the data regarding the relationship between the possession of an automobile and the fertility of the white rural-farm population. The per cent of farms in the Area reporting the possession of a car is taken

Table XXXVII: Per Cent of Farms Reporting a Telephone in the Dwelling in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Per cent of farms reporting a telephone in the dwelling	Effective fertility ratios white rural-farm population	Rank by per cent reporting a telephone	Rank by fertility
Area 1	2.3	564.1	2	5
Area 2	5.8	462.9	7	1
Area 3	5.3	515.4	5	3
Area 4	5.4	478.9	6	2
Area 5	8.0	578.4	8	6
Area 6	3.1	596.6	4	7
Area 7	1.7	672.2	1	8
Area 8	2.9	551.5	3	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Table XXXIII: Per Cent of Farms Reporting Tractors on the Farm in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Per cent of farms reporting tractors on the farm	Effective fertility ratios white rural-farm population	Rank by per cent reporting tractors	Rank by fertility
Area 1	5.4	564.1	2	5
Area 2	9.4	462.9	8	1
Area 3	7.3	515.4	5	3
Area 4	9.3	478.9	7	2
Area 5	8.8	578.4	6	6
Area 6	6.7	596.6	4	7
Area 7	3.4	672.2	1	8
Area 8	5.7	551.5	3	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

Table XXIX: Per Cent of Farms Reporting Automobiles on the Farm in 1945 Related to the Fertility of the White Rural-Farm Population by State Economic Areas[1]

State Economic Areas	Per cent of farms reporting automobiles on the farm	Effective fertility ratios white rural-farm population	Rank by per cent of farms reporting auto-mobiles	Rank by fertil-ity
Area 1	46.4	564.1	3	5
Area 2	62.1	462.9	8	1
Area 3	44.5	515.4	2	3
Area 4	50.6	478.9	6	2
Area 5	54.9	578.4	7	6
Area 6	48.0	596.6	5	7
Area 7	47.1	672.2	4	8
Area 8	34.2	551.5	1	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951), Table B; and Table I, Appendix A.

as a direct measure of the average socio-economic level of the area. No relationship is discerned.

Conclusions drawn from Tables XXXV through XXXIX consist of a recognized inverse relationship between socio-economic status as mirrored in levels of living and the fertility of the white rural-farm population. This is in line with existing theory proposing such a relationship and the findings of previous population studies.

The breakdown of the data into two groups of different fertility performance, and the inverse relationship between level of living and fertility within each, is understandable if previous work is considered. The high fertility areas are 7, 6, 5, and 1. These are the areas characterized by poor soils and/or low rates of farm ownership and high rates of wage labor. Thus the interdependence of all three factors is demonstrated. Level of living is shown to be of real importance because it operates within the other restrictions.

One other proposition within the economic frame of reference remains. This is the partial transfer to an urban economy. This proposition was applied to a simple ranking of the counties and was substantiated. It is introduced here to indicate its existence at this level of analysis and to emphasize the complexity of the problem.

Exactly what is being measured by an index of such a

characteristic? Part-time farmers generally seek non-farm work. In this there is no social class change. They still occupy a lower rung of the occupational income scale as they generally accept manual and often unskilled work. Economic enhancement is partially debatable.[54] It appears most likely that enhancement is felt by the lower elements of the agricultural economy when they can find off-farm work to fill slack periods in farm activity. Thus in addition to measuring a change in the economic level, the index is a gauge of a disrupted way of life. It is a potential transfer of economic practices and an invasion of family life standards and an alteration of the outlook or total way of life. It is presumed that this transfer is associated with reduced fertility.

Data for an index of this phenomenon, as previously mentioned, are available in State Economic Areas. An index is obtained by computing the proportions of farm operators working off of their farms 100 days or more during 1944 of all farm operators of the Area. In Table XXXX, data bearing on the relationship between a partial transfer from a rural to an urban economy, as measured by this index, and the fertility of the white rural-farm people are presented. The tendency is present but the inability to account for the

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[54] Francis E. McVay, Factory meets Farm in North Carolina, North Carolina Agricultural Experiment Station Technical Bulletin 83, Raleigh, North Carolina, 1947, pp. 9-15

Table XXXX: Per Cent of Farm Operators Reporting 100 or More Days of Off-Farm Work Related to White Rural-Farm Fertility by State Economic Areas[1]

State Economic Areas	Per cent of farm operators working off of their farms 100 days or more in 1945	Effective fertility ratios white rural-farm population	Rank by per cent of off farm workers	Rank by fertility
Area 1	15.7	564.1	3	5
Area 2	17.4	462.9	5	1
Area 3	18.2	515.4	7	3
Area 4	16.0	478.9	4	2
Area 5	18.0	578.4	6	6
Area 6	10.5	596.6	2	7
Area 7	2.9	672.2	1	8
Area 8	27.3	551.5	8	4

1. Donald Bogue, State Economic Areas (Government Printing Office, Washington, D.C., 1951) Table B; and Table I, Appendix A.

urban nature of the off-farm employment prevents the appearance of a real relationship.

Summary

The exploration of the relationship between socio-economic status and rural-farm fertility is based upon extensive research. The specific elements of the relationship that have been isolated are:

I. Farming, as an economic structure, is associated with high fertility.

II. Socio-economic statuses within the farming economy are associated with distinct levels of fertility performance.

It was proposed both to apply and test these presumptions to the white rural-farm fertility in South Carolina in an effort to understand the present and predict the future fertility behavior of the people.

Original techniques called for the ranking of the counties by various economic indexes and by fertility performance, the investigation of relationships found to exist, and computation of correlations to gauge the strength of such relationships.

The direct relationship between farming and high fertility had been previously determined in Chapter III. An index of per cent of employed population of the county en-

gaged in agriculture had been used. The original implication had been the pervasion of the rural way of life with its values on family and children. The same index and findings can be used to indicate an economy and its relationship to fertility.

An investigation of the relationship between the socio-economic statuses of the rural-farm population and fertility performance was proposed through the consideration of:

I. Reward Distribution system.

II. Conditions of the general farm economy.

III. Selected levels of living.

In considering the reward distribution system, attention was turned to the distribution of the economic revenue of the farm enterprise with the reasoning that those having the least share would have the highest fertility. Tenancy, crop tenancy, and ownership ratios of the farm operator population were used as indexes. No relationship was discovered with the use of either the tenancy or crop tenancy ratios. Their ambiguous nature possibly prevented any clear insight. An inverse relationship of the moderate correlation strength of 0.60 was found between socio-economic status and fertility when ownership was used as an index. The existence of an inverse relationship was accepted, but the presence and importance of other factors was recognized.

A logical factor seemed to be the economic condition

of the entire farm enterprise as indicated by its value and revenue. As this is ultimately a function of soil resources, the latter was selected as astarting point. The state was subdivided by soil types and fertility differences were analysed. A slight relationship was discovered. There was extreme variability in fertility within any one soil type area. But the similarity of fertility among sets of contiguous counties within an area made it most logical to direct further socio-economic considerations through sub-areal groupings of counties.

A Bureau of the Census publication, State Economic Areas, presented groupings of agriculturally socio-economically homogeneous counties for the state. Significant fertility variations between them were noted and their use was accepted. The subsequent analysis made use of the 1945 data originally used to delineate the areas. This data was presented in the publication, State Economic Areas. Three elements of the economy were selected for investigation:

I. Condition of the general farm economy.

II. Distribution of the controls over the economic rewards of the farm enterprise.

III. Aspects of the level of living.

Two objections were raised at this point. One concerns the 1945 data; the data did not permit the separation of the white and Negro races. This has been shown to be a serious limitation. The other concerns the fertility fluctuations

within some of the State Economic Areas. In two cases this exceeds 250 points. The Areas are not homogeneous in some factor or factors significant to fertility variation.

Overriding these objections an analysis was made using the available areas and the 1945 data. As indexes of the condition of the general farming economy, the size of farm, crop areas harvested, and value of lands, buildings, machines, implements and farm products were used. The relationship was established; as the economy rose fertility fell, but certain reservations were made. State Economic Areas 5, 6, and 7 showed a general tendency towards a rise in fertility with a rise in general economic conditions of farming. This tendency was thought to be related to the system of distribution of the farm revenue. Such a case was assumed in the outlined program of study, and a second set of indexes was introduced to account for the distribution system. Decreasing claims on the system were presumed to be associated with increasing fertility. Ownership and paid labor wages were used as indexes. An inverse relationship was established. Earlier findings of this study had made this the expectation. The use of an index on wage laborers clarified an earlier inability to obtain a relationship by using tenancy as a measure. Those areas with high fertility and moderate tenancy rates had large proportions of wage work. This evidence in turn supported the preceding statement of an inverse relationship between the condition of the general farm

economy and fertility because it justifies the direct relationship found in Areas 6, and 7, and partially that found in Area 5.

A third element of the socio-economic structure was considered. This was level of living. Persons aspiring to and attaining high levels of living frequently do so by reducing the burden of procreating and rearing children. It was therefore proposed that the fertility of the white rural-farm population would be inversely related to the population's level of living.

Possession of electrically wired homes, tractors, automobiles, running water, and telephones were used as indexes of level of living. A definite inverse relationship was established between level of living and fertility.

A general conclusion is that an inverse relationship between socio-economic status and fertility prevails within South Carolina's white rural-farm population. Socio-economic status is a complex phenomenon and the interrelationships are frequently involved. Fertility variation is not related to it alone. The foregoing analysis was unable to pin down the problem more specifically because of a failure to consider the races separately and a lack of homogeneous fertility performance within each separate State Economic Area. The exact influence of the use of 1945 data was also not known.

CHAPTER FIVE

HOMOGENEOUS FERTILITY AREAS RELATED TO DEMONSTRATED IMPORTANT SOCIO-ECONOMIC FACTORS

Introduction

The basic problem encountered in this study has been the general tendency for a number of variables to be factors in fertility performance, while at the same time no factor can be isolated as of paramount importance or even of consistent importance. In part, this can be attributed to the unwieldiness of the unit of analysis, which is too large to be of basic homogeneity. It is possible that such is the nature of the phenomena. But, it is necessary to demonstrate this in as positive terms as possible.

The findings on socio-economic status and its relationship to fertility presented in Chapter IV produced strong support for the thesis of an inverse relationship between the two factors. The work in the third chapter produced similar support for the thesis of an inverse relationship between the fertility of the white rural-farm population and the partial transfer to an urban economy. These relationships were determined in spite of two major drawbacks of the data and the methods. One was the inability to account for a recognized racial bias in socio-economic factors, and the other was the recognition that state economic areas were really not homogeneous in terms of fertility performance. It

seems necessary at this point to account for both of these factors.

It appears entirely possible to combine both the determined factors and the above defined limitations of the study to date, and from them to draw substantive conclusions. It is therefore proposed that homogeneous fertility areas be defined; that they be accepted as constituting in some fashion homogeneous socio-cultural areas; and that these areas be examined for fundamental differences in socio-economic status and the impingement of an urban economy.

The procedure will be as follows: the fertility ratios of the white-rural farm population for each county will be entered on a county map of the state. Through a series of combinations, both visual and statistical, homogeneous grouping of counties will be discovered and plotted. These groupings will in turn be examined with every index and characteristic so far demonstrated in this study to have relationship with fertility variability. In every case racial bias will be accounted for by considering the characteristic only as it applies to the white race. Whenever possible fruitful areas will be examined by further indexes in an effort to refine the relationship as explicitly as possible.

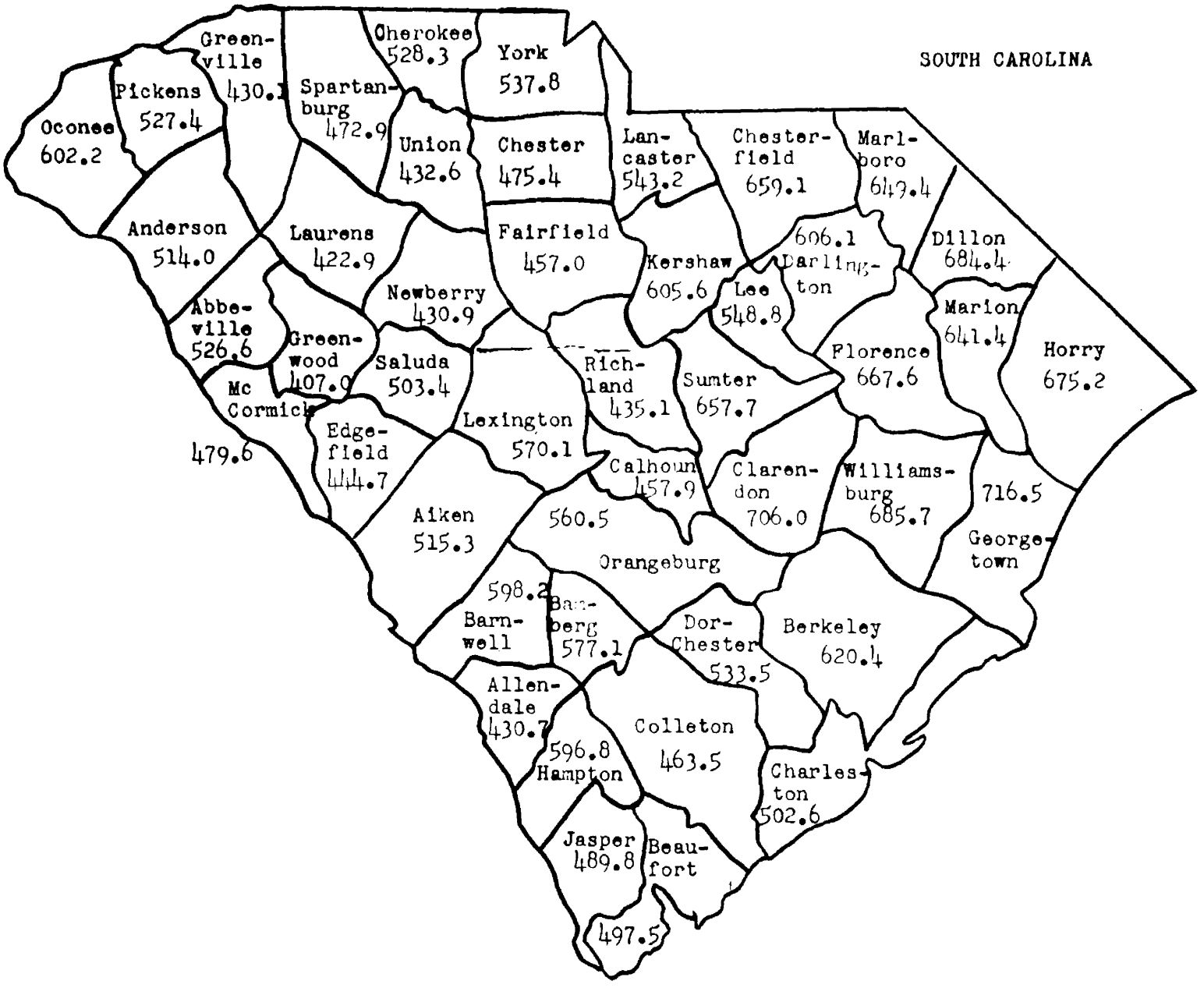
The first step is to determine the relatively homogeneous fertility areas. Table I in Appendix A contains the effective fertility ratios of the white rural-farm population for each county in the state. These ratios were

transcribed to a county map of the state. The results are reproduced in Figure 9.

Visual inspection immediately isolates five basic areas. In the northeast sector of the state the counties have in the main high fertility. Immediately below in the southeast sector fertilities are highly variable. On the coast the fertilities are low. In the central portion of the area the fertilities are moderate, while Barnwell and Hampton Counties on the southern border have high fertilities. Two more sectional divisions occur in the interior of the state. A middle grouping of counties in the interior possessing low fertility is bordered on the north and south by strips of counties having moderate fertility. In the far west, Oconee County stands alone with a high fertility.

Within these five areas individual counties are opposed to the general tendency and are more closely related to non-contiguous areas or stand mid-way between bordering groupings. First there are the obviously inconsistent counties. In the northeast, Lee County, with its moderate fertility ratio of 548.8, does not resemble the surrounding high fertility counties which are well up in the 600's. It is, therefore, excluded from this grouping and joined to the moderate fertility counties in the middle southern sector. In the far west Oconee County does not resemble the surrounding counties but rather resembles the northeast sector counties. However, it does not seem advisable to join it to them. In

Figure 9: Effective Fertility Ratios White Rural-Farm Population by County



terms of soil type, type of farming, and surrounding urbanism, it is too far different to be included. It must therefore be kept apart and, for all practical purposes aside from occasional comparisons, be excluded from the following study. Finally on the Georgia border in the southeast Hampton and Barnwell Counties differ considerably from the surrounding counties and tend to resemble the northeastern counties. As they are in the general Coast Plain milieu, it is thought to be practical and acceptable to include them with the northeastern counties.

It is proposed at this point to consider the four metropolitan counties as a separate unit. This is not in agreement with the statement in State Economic Areas which affirms a basic similarity of agriculture in these counties with that found in contiguous areas. However, the defined State Economic Areas are not homogeneous in fertility. It appears that new considerations are in order. Therefore, they will be considered separately. Some additional work on metropolitan areas and fertility will be undertaken.

The entire Coast Plain area of the state has been accounted for and attention can be turned towards the interior counties. Here the problem is one of relegating several inbetween counties into either the central low fertility grouping or the bordering moderate fertility grouping. The counties concerned are Chester, Spartanburg, and McCormick. The central grouping shows a fertility range from 407.0 to

457.0, while the bordering group has a fertility range from 543.2 to 503.4. The fertility of each of the three counties under consideration was compared for distance from the lowest point in the range of the latter grouping and the highest point in the range of the former. Spartanburg was found to be only 15.9 points higher than the range of the interior grouping and was assigned to it. Chester was found to exceed this same grouping by only 18.4 points and was also assigned to it. McCormick was poised equidistant from both and was assigned arbitrarily to the bordering group to give a balanced number of counties to each group. Comparing the average fertility of each grouping to the separate fertility ratio of each of the three counties results in the same assignments.

This completes the disposition of all of the counties and results in the formation of six groups and the exclusion of Oconee County. Table XXXXI contains the final disposition of all of the counties and the average fertility ratio of each group. For convenience the groups are assigned a number beginning in the interior of the state. Figure 10 depicts the location of each group.

The Influence of the Metropolis on White Rural-Farm Fertility

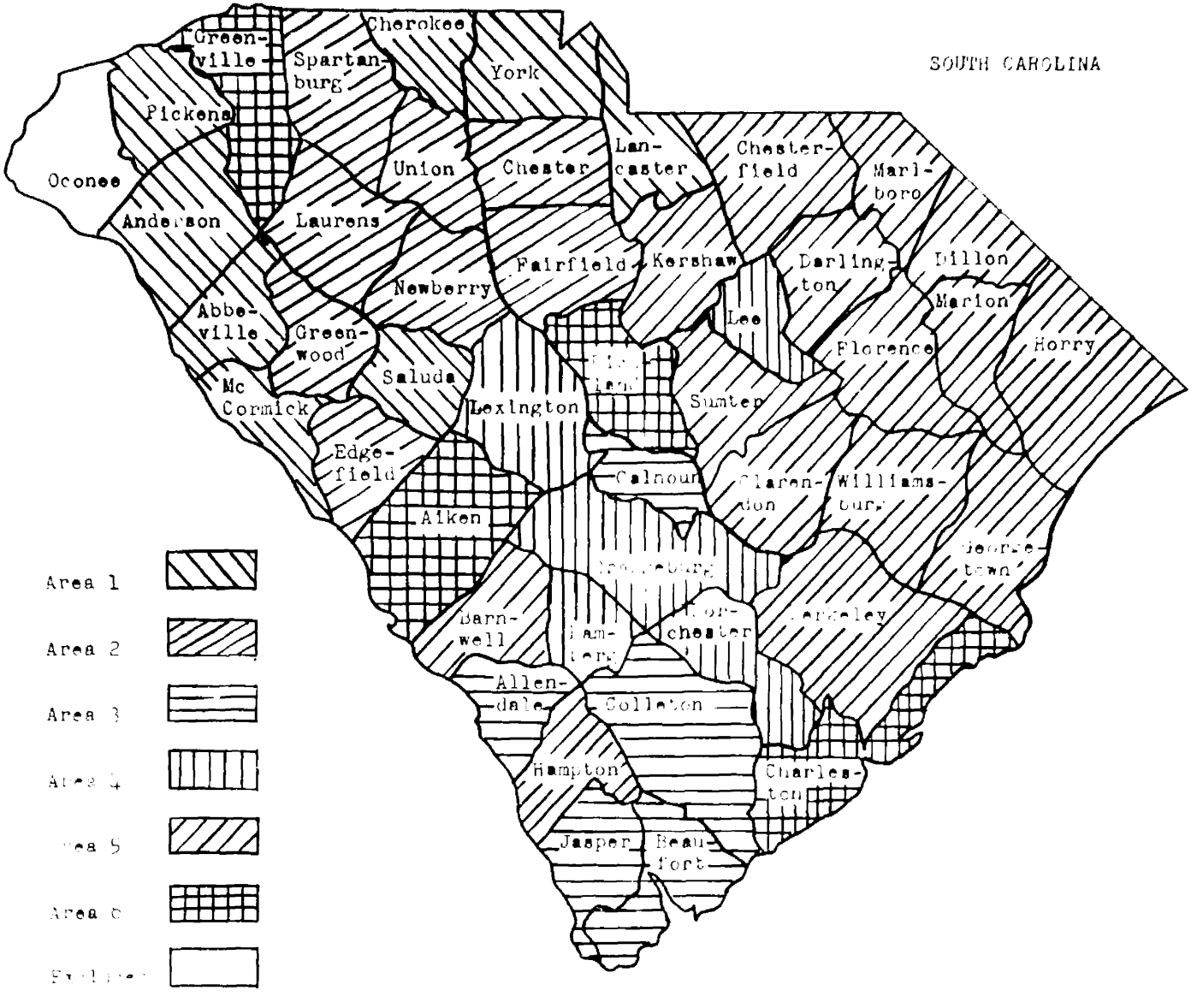
In the subdivision and grouping by homogeneous fertility areas made above, four counties were set aside because of their metropolitan nature. The basis of this is the previously quoted studies showing a declining urban fertility with

Table XXXXI: State Fertility Areas[1]

State fertility areas and counties	Effective fertility ratios white rural-farm population	State fertility areas and counties	Effective fertility ratios white rural-farm population
Area 1		Bamberg	577.1
Lancaster	543.2	Lexington	570.1
York	537.8	Orangeburg	560.5
Cherokee	528.3	Lee	548.8
Pickens	527.3	Dorchester	533.5
Abbeville	526.6	Average	560.6
Anderson	514.0	Area 5	
Saluda	503.4	Georgetown	716.5
McCormick	479.6	Clarendon	706.0
Average	524.2	Williamsburg	685.7
Area 2		Dillon	684.4
Chester	475.4	Horry	675.2
Spartanburg	472.9	Florence	667.6
Fairfield	457.0	Chesterfield	659.1
Edgefield	447.1	Sumter	657.7
Union	432.6	Marlboro	649.4
Newberry	430.9	Marion	641.4
Laurens	422.9	Berkeley	620.4
Greenwood	407.0	Darlington	606.1
Average	451.5	Kershaw	605.6
Area 3		Barnwell	598.2
Beaufort	497.5	Hampton	596.8
Jasper	489.8	Average	659.0
Colleton	463.5	Area 6	
Calhoun	457.9	Aiken	515.3
Allendale	430.7	Charleston	502.6
Average	465.3	Richland	435.1
Area 4		Greenville	430.1
		Average	453.1

1. Data from Table I, Appendix A.

Figure 10: State Fertility Areas



increasing urban size. In Chapter II of this study the influence of urbanism as a generalized force upon the fertility of the white rural-farm population was investigated and refuted. However it was noted that this fertility was low in the metropolitan counties. The influence of the metropolis can be checked at this point. The fertility ratio of the white rural-farm residents of the metropolitan counties can be compared against those of the other areas. The face of the evidence in Table XXXXI indicates that no relationship exists. The white rural-farm people of the metropolitan grouping have an average fertility ratio of 453.1. This is equaled in both Area 2 and Area 3. The white farm residents of the former have an average fertility ratio of 451.5 and those in the latter have one of 465.3. Both are of course for all purposes the same as the average for the metropolitan area.

If this is the case what is the influence of urban size upon urban fertility? Does not urban fertility decline as urban size increases? This can be studied quickly in a limited fashion by considering the major urban centers only. It may give insight to the fertility of the white rural-farm population.

The analysis begins with a composite view of residences for the entire state. These are set forth in Table XXXXII. It presents data and fertility ratios for the white population for urban, rural-nonfarm, rural-farm, and composite

Table XXXXII: Effective Fertility Ratios White Population of South Carolina by Residence, 1930-1950[1]

Year and ratios	State	Residence Urban	Rural-nonfarm	Rural-farm	Rural[2]
1950					
Number of women 15-44	307558	141623	100005	65930	165935
Number of children 0-4	154696	62029	55839	36823	92662
Effective fertility ratios	503.0	438.0	558.4	558.5	558.4
1940					
Number of women 15-44	271511	84058	95242	92204	187446
Number of children 0-4	107740	23414	39372	44954	94326
Effective fertility ratios	396.8	278.5	413.4	487.5	449.9
1930					
Number of women 15-44	219694	61917	72105	85672	157777
Number of children 0-4	108643	22286	36510	49847	86357
Effective fertility ratios	494.5	360.0	506.3	581.8	547.3

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Table 16.

2. Both rural-farm and rural-nonfarm.

rural residences for the period 1930-1950. Column one contains the year, while columns two through five contain the residences.

For each year specified, the fertility of the white rural-farm population exceeds that of the white urban population. In both 1930 and 1940 white rural-farm group exceeds the white rural-nonfarm group. In 1950 they are equal. These are of course the expected differences.

Over the twenty year period each residential grouping shows a decline and a final rise in fertility to the last date. The dip is of approximately equal strength for each residence group. For the urban and rural-nonfarm groups, the 1950 fertility ratios exceed those for 1930. The 1950 fertility ratio of the white rural-farm people is about 30 points under that for 1930. The largest increase, about 80 points, is registered by the white urban population. This short time trend is in line with the increasing trend reported for the nation as a whole.[1]

In each case the fertility of white urban people is less than that of the farm people. This is a consistent relationship regardless of trends. Can it be demonstrated that urban fertility declines with an increase in urban size?

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[1] Public Health Service, Vital Statistics, Special Reports, Volume XXXIII, "The Meaning of the 1947 Baby Boom," (Governm

An approach can be made to the solution of this question. The Census Bureau provides in the 1950 census a three category breakdown of the metropolis.[2] There is first the central city of the metropolis, the legal entity. This is the massed residential area and business and industrial hub. It is the legally defined city. Next there is the urbanized area. This is the legal urban community, providing it has a population of 50,000 or more persons, together with its fringes of incorporated and unincorporated places. That is, it is the city and its massing of population just outside of its legally defined limits. Finally there is the metropolitan area. This is a county or group of counties containing at least one city of 50,000 persons or more. Here then are three areas of urbanity. In decreasing strength of urbanity they are the city, the urbanized area, and the metropolitan area. In South Carolina three of these sets are available. A fourth, Aiken County, is defined as a part of the Augusta, Georgia metropolitan area. It can be used in part.

It is proposed that the fertility of the white population will increase consecutively from the urban center through the urbanized area to the metropolitan area in each of these three sets of data. Further the fertility of the white population of Aiken County will equal or be superior to that of

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[2] Bureau of the Census, United States Census of Population: 1950, Volume II, "Characteristics of the Population," Part 40, "South Carolina" (Government Printing Office, Washington, D. C., 1952), pp. V-VI.

the other metropolitan areas because it is the second of a two county metropolitan system.

The data bearing upon this analysis are assembled in Table XXXXIII. Column one contains the area, column two the number of white women aged 15-44, column three the number of white children under the age of five, and column five the effective fertility ratios of the white population. The metropolises are ranked by size of their urban community. In South Carolina, Columbia is first with a city population of 86,914 persons. It is followed by Charleston with 70,174 persons. Greenville has 58,161 persons and is ranked third. Aiken County is contained within the Augusta, Georgia metropolitan area. The city of Augusta has a population of 71,508. In all cases the total populations include Negros.

In the Columbia metropolitan unit, there is a regular progression in rising fertility from the urban place through the urbanized area to the metropolitan area. The fertility ratios are respectively 339.0, 417.0, and 430.6. The last two are so close that a real distinction can be made.

The same relationships hold true for the Charleston metropolitan unit's population. The fertility of the population increases regularly from the urban place to the metropolitan area. Little difference and no social difference occurs between the fertilities of the urbanized area's population and that of the metropolitan area. It is interesting to note that in each category the fertility of Charleston's popula-

Table XXXXIII: Relationship Between Metropolitan Residence and the Fertility of White Urban People[1]

Community and residence by size of urban place	Fertility experience		
	Number of white women aged 15-44	Number of white children aged 0-4	Effective fertility ratios white rural-farm population
Columbia			
Urban place	15771	5347	339.0
Urbanized area	22405	9347	417.0
Metropolitan area	23957	10315	430.6
Augusta[2]			
Urban place	4113	10483	392.3
Urbanized area	5806	13811	420.4
Metropolitan area	11744	25025	469.3
Charleston			
Urban place	9532	3569	374.4
Urbanized area	19037	9004	473.0
Metropolitan area	23087	11274	488.3
Greenville[3]			
Urban place	12034	4535	376.8
Metropolitan area	35584	15812	444.4

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Parts 11 and 40, Washington, 1952, Chapter B, Table 33 in both Parts 11 and 40; and Table I, Appendix A.

2. Aiken County, South Carolina is a part of the Augusta, Georgia metropolitan area.

3. The Bureau of the Census did not define an urbanized area.

tion exceeds that of Columbia.

Greenville does not have an urbanized area. Its total population in 1940 was under the figure taken by the Census Bureau as the miminum required for the delimitation of the urbanized area. Once again the rise in fertility is present. The urban-place population's fertility is 376.8 while the metropolitan area population's fertility ratio is 444.4. It should be noted the Greenville's urban-place fertility is equivalent to the Charleston's, but its metropolitan area's fertility is 44 points under Charleston's. At the same time there is a greater total population difference between Greenville and Charleston than there is between Charleston and Columbia.

The Augusta, Georgia, metropolitan area has a total population of 162,013 persons. Of these 71,508 people live in the city of Augusta, and 108,873 persons live in Richmond County, the county in which Augusta is located. The remainder, 53,137 people, live in Aiken County, South Carolina, and of these 7,083 live in the town of Aiken. Therefore, this metropolitan unit as a whole, in its dependence upon Augusta city, should rank between Columbia and Charleston cities.

The same fertility experience is noted for the Augusta metropolitan unit as was noted for the others. There is a regular progressive increase in fertility from the urban-place to the metropolitan area. The fertility ratios are respectively 392.3, 420.4, and 469.3. The urban-place

fertility of Augusta exceeds that of all of the other metropolitan units, but its urbanized area and metropolitan area fertilities fall between those of Columbia and Charleston.

To sum up this table, fertility increases regularly with the inclusion of successive territories surrounding the central city. The differences in the totals seem socially significant. The differences between urbanized areas and metropolitan areas do not seem socially significant. Therefore, the central city's influence seems uniform throughout the defined area of its influence. In general there is a progressive increase in fertility with the decline in size of the central city. All of these conclusions must be accepted as tentative due to the small number of units involved in the analysis.

The analysis made so far supports the accepted theory of an inverse relationship between urban size and fertility performance. One final area of analysis can be used to conclude the case. This is the study of fertility performance among the major cities and towns of the state.

To guide the study it is proposed that the fertility performance of the urban population is inversely related to urban size. The required data are assembled in Table XXXXIV. Column one contains the urban communities, column two their total white populations, columns three and four the number of women aged 15-44 and the number of children aged 0-4, and column five the effective fertility ratios of the white

Table XXXXIV: Relationship Between Size of Urban Community and the Fertility of the White Urban People[1]

Urban community	White population of the community	Number of women aged 15-44	Number of children aged 0-4	Effective fertility ratios white rural-farm population
Columbia	55671	15711	5347	339.0
Greenville	42063	12034	4535	376.8
Charleston	39287	9532	2569	374.4
Spartanburg	24568	6700	2560	382.1
Rock Hill	19486	5871	2292	390.4
Anderson	14247	3867	1415	365.9
Florence	14061	3682	1679	456.0
Sumter	13327	3472	1750	504.0
Greenwood	9216	2488	843	338.8
Brandon-Judson	8911	2366	1019	430.7
Orangeburg	7439	1878	891	474.4

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Table 33.

urban population.

The data in the table in general support the thesis of an inverse relationship between urban fertility and urban size, but the evidence is not as conclusive as proposed. Three urban communities appear out of line in the relationship. Of greatest importance is Greenwood which has as low a fertility as Columbia but is the ninth largest urban community, while Columbia is the largest. Some of this can be explained by the presence of a small college and an orphanage within the town. This would place some young unmarried women in the population and thus reduce the fertility ratio. Therefore, Greenwood can be partially explained. Anderson is also out of line. Its position as an urban community of its present rank goes back at least as far as 1930. Brandon-Judson is also somewhat out of line. No specific reason can be given for these deviations.

The problem presented by this Table is a determination of the amount of difference which must be present for social significance. There can be no doubt about the significance of the extremes of the table, but there is some about several steps within the table. There is a significant drop in population between Columbia and Greenville, and it is accompanied by a significant increase in fertility. There is neither between Greenville and Charleston. There is a significant population drop between Charleston and Spartanburg, but no increase in fertility. There is a drop of about 5,000 in

population between Spartanburg and Rock Hill, but there is no significant change in fertility. Rock Hill and Florence differ significantly in both population and fertility. The fertility change between Florence and Sumter is significant but the population drop is not. Orangeburg stands mid-way in fertility between the last two, but is significantly lower in population. From this it appears that large size differences in population are important, but that small differences are not, and in the latter case other factors must be sought to explain the variation that occurs.

From the foregoing study it appears evident that the fertility of the white urban people of the state is inversely related to the size of the urban community. This will not explain all of the variability seen between urban communities, but it will explain a large portion of it.

The original motivation of this analysis was the recognition that the fertility of the white rural-farm people in the metropolitan counties did not differ significantly from that of two nonmetropolitan areas. This brought up the question of the variability of urban fertility by the size of the urban community. It is now demonstrated that this relationship does exist within the South Carolina urban population.

One more point needs to be clarified before the implications of the above findings can be transferred to the fertility patterns of the white rural-farm people. Does the

fertility of the white metropolitan area people differ from that of the white rural-farm people in the same area? Table XXXXV contains data bearing upon this question. Column one contains the metropolitan areas and residential categories, columns two and three contain the required data on women and children, and column four contains the effective fertility ratios of the white populations.

In every case the fertility of the white rural-farm population does exceed that of the white urban residents in the same metropolitan areas. While the differences in fertility are not always large the trend is clearly evidenced. Certain factors support this conclusion. Charleston and Aiken counties are the receipients of war-time and post-war migrants and there are indications that large numbers of these were young married couples. This would tend to inflate the fertility ratios for both areas and smaller rural-urban differences would result.

However, the limited size of the variations reduces the confidence that can be placed in any generalization. Certainly the social difference is questionable. In addition it is noted that the fertility of the white rural-farm people in Greenville and Columbia counties is less than that of the white urban people in Aiken and Charleston counties.

A complete generalization cannot be made. It may be said tentatively that the fertility of the white rural-farm people exceeds that of the white urban people in the same metropoli-

Table XXXXV: Relationship Between the Fertility of White Urban and White Rural-Farm People by Metropolitan Areas[1]

Metropolitan area and residence	Effective fertility ratio white population	Point difference
Columbia		
Urban	414.3	20
Rural-farm	435.1	
Aiken[2]		
Urban	469.4	46
Rural-farm	515.4	
Charleston		
Urban	473.0	29
Rural-farm	502.6	
Greenville		
Urban	306.4	123
Rural-farm	430.1	

1. Table I, Appendix A.

2. Aiken County, South Carolina is a part of the Augusta, Georgia metropolitan area.

tan area. Such a tendency is clearly established.

These factors can be sustained by the analysis of the degree of urbanization in the separate fertility areas. The data appearing in Table XXXXVI make this analysis possible. The per cent of the total areal population classified as urban was taken as an index of urbanity. Within the table, column one contains the fertility areas, column two the index of urbanity, and column three the measured fertility of the white rural-farm population.

Visually ranking the areas by fertility and by urbanity shows that no relationship exists. Area three, the most rural area, has a fertility about equal to Area 6, the metropolitan grouping, and Area 2, the third most urban grouping. At the same time Area 6 is about two-thirds urban while Area 2 is one tenth urban. Areas 4 and 5 are not significantly different in urbanization, both being about one fifth urban; yet they have significantly different fertility ratios, 560.6 and 659.0 respectively. They are also much less distant from Areas 2 and 3 than the latter are from Area 6, but there is a far greater fertility variation between Areas 4 and 5 and Areas 2 and 3 than there is between the latter and Area 6.

The conclusions drawn from this section of the study are in full agreement with those in Chapter II. There is no observed relationship between urbanism and the fertility of the white rural-farm people. Such a tendency does occur, however, within the metropolitan areas. This is despite the recognized

Table XXXXVI: Relationship Between Degree of Urbanism and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of population classified as urban	Effective fertility ratios white rural-farm population
Area 1	36.3	524.2
Area 2	34.0	451.5
Area 3	10.4	465.3
Area 4	23.0	530.6
Area 5	22.6	659.0
Area 6	66.7	453.1

1. Compiled from data in Tables I and II, Appendix A.

established inverse relationship between white urban fertility and size. It can only be concluded that those urban factors producing a decline in urban fertility do not apply to rural-farm fertility. Either the factors have not yet been diffused or their impact is not felt in the rural world.

The Influence of Socio-Economic Status on White Rural-Farm Fertility Re-examined

The major work proposed for this chapter is the redevelopment of the relationship between socio-economic status and the fertility of the white rural-farm population. Such a relationship is authenticated by a number of studies. It was established with respect to the South Carolina population in Chapter IV. However, dissatisfaction was expressed with the inability to hold the socio-economic factor of race constant and the variability of fertility performance within the defined State Economic Areas. It was proposed that a new grouping on the basis of homogeneous fertility performance be made and this averaged fertility be related to white socio-economic status measures only. It was proposed that this would result in the establishment of a more clear-cut relationship.

The fertility areas have been constructed and introduced in an earlier section of this chapter. Attention is here turned to adequate socio-economic indexes for the white rural-farm population. Such indexes must be produced on a county basis in order to be usable with the units on which fertility was measured. The most direct approach to the problem is a

regular process through the already established indexes and tables.

Socio-economic condition and level have been traced in previous work to the underlying condition of the entire farming economy and the distribution of the rewards of the economy to the various elements of the farming population. Logic dictates the investigation of these factors as a preface to the investigation of the inventories of material possessions, the commonly accepted indexes of socio-economic status.

In Chapter IV an inverse relationship was determined to exist between the condition of the general farm economy and the fertility of the white rural-farm population with the exception of the upper coast plain section where a direct relationship was established. The most enlightening indexes used were the size of farm and the value of farm machinery and implements.

The United States Census of Agriculture, 1950 presents data on the number of white farm operators and the total land in farms of these same people.[3] From these an easy computation was made of the average size of farms in terms of acres of land per white farm operator. The resulting measure of

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[3] Bureau of the Census, United States Census of Agriculture: 1950, Volume I, "County and State Economic Areas," Part 16, "North and South Carolina" (Government Printing Office, Washington, D. C., 1952), Chapter B, Table 2a.

the condition of the general economy appears in Table XXXXVII. Column one contains the Fertility Areas and the counties, column two contains the average size of the white farm operation, and column three fertility performance of the white rural-farm population.

No relationship between the variables can be discovered. There is great variability in size of farms. The largest average is 290 acres in Area 3. This is associated with an average fertility ratio of 465. However Areas 2 and 6 with average acreages of 125 and 106 have equally as low fertility ratios of 451 and 453, respectively. It cannot be presumed that there is a maximum point in size beyond which fertility does not vary greatly as Areas 5 and 4 have nearly the same acreages, 115 and 114 respectively, while their fertility ratios are 659 and 560. Their size of farms is not sharply divergent from the other acreages but their fertility is. The data in the table do not mirror even a tendency towards the anticipated inverse relationship.

Data for the second suggested index, value of farm machinery and implements are not available for white farm units. However there are available data for constructing an index of average crop acreage harvested. Although of admittedly poor nature it is the only insight available. Presumably the larger the average crop acreage the better the economy of the average farm operation. Table XXXXVIII presents the data bearing upon this relationship between the

Table XXXXVII: Relationship Between Average White Rural-Farm Size and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Average size in acres of white rural-farms	Effective fertility ratios white rural-farm population
Area 1	97.3	524.2
Area 2	125.1	451.5
Area 3	290.4	465.2
Area 4	141.2	560.6
Area 5	114.8	659.0
Area 6	106.4	453.1

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

Table XXXXVIII: Relationship Between Average White Rural-Farm Crop Acreage and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Average crop acreage of white rural-farms	Effective fertility ratios white rural-farm population
Area 1	29.7	524.2
Area 2	34.3	451.5
Area 3	66.3	465.3
Area 4	56.5	560.6
Area 5	35.8	659.0
Area 6	31.8	453.1

1. Bureau of the Census, United States Census of Agriculture; 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

the average crop acreage harvested and white rural-farm fertility.

No relationship is present. Fertility Area 5 does not differ significantly in average crop acreage from Areas 1, 6, and 2. Their average crop acreages are 35.8, 29.7, 31.8, and 34.3, respectively. However, Area 5's fertility far exceeds those of the other mentioned Areas. At the same time, Area 4 while having a moderate fertility ratio has an average crop size of 56.5 acres which is similar to Area 3's which is 66.3. But the latter's fertility is much less being 465.2 while the former's is 560.6. No interpretation can be given for the nature of this table at this point other than the complete failure of the index to effect any screening.

Will the consideration of the distribution of claims upon the farm economy prove more fruitful? The analysis undertaken in Chapter IV indicated the presence of an inverse relationship. Is this condition clarified and rendered more explicit by the consideration of homogeneous fertility areas?

The extent to which the average farm operator in each county shared in the rewards of the farm economy was measured by three indexes. These were the per cent of white farm operators classified as full owners, the per cent of farm operators classified as croppers, and the per cent of farms where paid wages of $200 or more during the year 1949 were reported. Insofar as possible these same indexes will

be used again and will be modified for the white rural-farm population.

Table XXXXIX contains data bearing upon the relationship between ownership and fertility among rural-farm whites. The columns contain, respectively, the fertility areas, the per cent of white rural-farm operators who are owners, and the fertility ratios of the white rural-farm population. The analysis is guided by a proposed inverse relationship between the two variables.

This proposition is substantiated. The data indicate an inverse relationship. Among rural-farm whites, as ownership declines fertility increases. The nice stair step arrangement should not be emphasized. Areas 2 and 6 have the same per cent of ownership and nearly identical fertilities. Areas 3, 1, and 4 have nearly identical per cents of ownership, but they show a scatter of about 100 points in fertility ratios. Their per cent of ownership shows about five points difference from those of Areas 2 and 6. The range of fertility is the same as before. In opposition to these groupings is Area 5 where the per cent of ownership shows a decline of about 16 points and a fertility decline of over 150 points. The stair stepping is then coincidental; the major distinction is the separation between Area 5 and Areas 2, 6, 3, 1, and 4. This involves significant differences in ownership and fertility performances.

Can the factor of tenancy be referred back to the data

Table XXXXIX: Relationship Between White Rural-Farm Ownership and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of white rural-farm operators classified as owners	Effective fertility ratios white rural-farm population
Area 1	62.1	524.2
Area 2	67.4	451.5
Area 3	62.3	465.3
Area 4	60.2	560.6
Area 5	47.6	659.0
Area 6	67.4	453.1

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

Table L: Relationship Between White Rural-Farm Crop Tenancy and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of white rural-farm operators classified as croppers	Effective fertility ratios white rural-farm population
Area 1	10.6	524.2
Area 2	8.4	451.5
Area 3	2.4	465.3
Area 4	8.0	560.6
Area 5	16.3	659.0
Area 6	6.5	453.1

1. Bureau of the Census, United States Census of Agriculture: 1950, Volume I, Part 16, Washington, 1952, Chapter B, Table 2a; and Table I, Appendix A.

on the general farm economy? Some understanding is attained from the data in Table XXXXVII. A rough combination of the average size of farms in Areas 1, 2, and 3 and the separate consideration of Areas 4, 5, and 6 produce a declining ranking of farm size which is respectively 170.9, 141.2, 114.8, and 106.4 (acres). These group divisions are made on the grounds of a rough similarity to type of farming areas and the advisability of considering the metropolitan farming areas separately. The same rough combination of average fertility ratios produces, respectively, ratios of 480.3, 560.6, 659.0, and 453.1. There is, then, an inverse relationship between average size of farms operated by white farmers and the fertility of rural-farm whites. The process of telescoping the fertility Areas presumably acts to control tenancy, shown to be related to fertility, and type of farming which in this case would influence the necessary size of the farm operation. The size of farm distinction is in terms of a cotton, orchard, and general farming area, a very poor soil area where much land is unusable, a tobacco area, and a truck farming area surrounding metropolitan communities.

A similar treatment cannot be made in Table XXXXVIII. Obvious inconsistencies between areas appear and prohibit this telescoping of the table. The index is completely useless.

In the study of the influence of the reward system upon fertility, suggested indexes two and three remain to be

examined. Index three, paid wages of $200 or more, cannot be prepared for whites because no census breakdown by race is available. This throws the burden upon index two, per cent of white croppers, a very weak measure. This was borne out in the analysis in Chapter IV where results were interpretable only with the corollary uses of the index on paid wages. On the off chance that when analyzed in terms of the homogeneous fertility areas it may offer some insight, the index was computed and is presented in Table L.

The construction of the table and its analysis are based upon the proposition that as white crop tenancy increases the fertility of the white rural-farm population will also increase. The columns contain the Fertility Areas, the per cent of white farm operators classified as croppers, and the effective fertility ratios of the white rural farm population, respectively.

No true relationship is disclosed. Area three with the low crop tenancy percentage of 2.4 per cent has the low fertility ratio of 465.3. Areas 6, 4, and 2 have white crop tenancy percentages of six to eight per cent. Areas 6 and 2 have low fertility ratios of 453.1 and 451.5, respectively. The fertility of the white rural-farm people in Area 4 is much higher being 560.6. Area 1 shows moderate tendencies with a white crop tenancy percentage of 10.6 and a fertility ratio of 524.2. Area 5 has 16.3 per cent of its white farmers classified as croppers and a high fertility ratio of

888.0. The comparison is one of extremes. There is no straight forward progression of the data. A partial explanation is dependent upon an evaluation of wage labor which cannot be made. This table is interpreted as being of no proof in itself, but as supporting the analysis and interpretation made in Table XXXXIX. Nothing new and no clarification have been offered to the analysis and conclusion already presented in Chapter IV.

What conclusions can be made so far in the analysis of economic factors through the use of homogeneous fertility areas? The original implications are retained. The fertility of the white rural-farm population is inversely related to the condition of the general white farm economy and to the reward distribution system of that economy. It appears that the reward distribution system is of greater importance than the condition of the general economy.

The use of homogeneous fertility areas has not led to greater clarity in the analysis of the relationships than was achieved with the use of State Economic Areas. From this, two interpretations follow. It must be presumed that numerous factors are at work and that their composite effect prevents more than the establishment of general reliability and validity for any one causal factor. Also, the present level of analysis through the use of census data will not permit closer scrutiny. Therefore, propositions and interpretations must be of a general rather than of a specific nature.

The crux of the relationship between economic status and white rural-farm fertility was defined in terms of level of living. Granted the desirability and availability of comforts, luxuries, and any activity, service, or object defined as desirable, it is presumed that each farm unit will possess these things proportional to its ability to pay for them. An inventory taken of these as possessed by the average farm unit in a county would then constitute a realistic, effective measure of the generalized economic status of farm units in the county. Moreover it would be the most direct and pertinent measure of such economic status.

This line of thought was pursued in Chapter IV, and it was demonstrated that an inverse relationship between socio-economic status and the fertility of the white rural-farm population existed. It should be remembered that in the use of State Economic Areas three Areas, 5, 6, and 7, stood apart from the others. The fertility of their white rural-farm populations was higher than those of the other Areas. Within these three Areas, however, an inverse relationship between the level of living and the fertility of the white rural-farm population was present. This was thought to possibly be due to the concentration of the Negro rural-farm population in Areas 5, 6 and 7. It is hoped particularly that the present analysis through the use of homogeneous fertility areas will resolve this split in the data.

The indexes selected for analysis are absence of piped

running water, possession of a mechanical refrigerator, possession of flush toilets, number of persons per room in the dwelling unit, degree of dilapidation among the residences, and per cent of the population having 6 or less years of formal schooling completed. The first index was used in Chapter IV, and it indicated an inverse relationship between socio-economic status and fertility. Two former indexes, per cent of units with telephones and per cent of units with tractors, are not available for the white residences alone and therefore cannot be used in the present analysis.

The second index above, possession of a mechanical refrigerator, is available for white units alone. It has been used successfully as an index of socio-economic status by Schuler and Sewell.[4] Index three has been used successfully by Schuler.[5] The minimum persons per room has been used by Schuler, Sewell, and Hagood.[6] The latter refined the measure

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[4] E. A. Schuler, Social Status and Farm Tenure - Attitudes and Social Conditions of Corn Belt and Cotton Belt Farmers (U.S.D.A. Social Research Report IV, Government Printing Office, Washington, D. C., 1938); and William Sewell, "A Short Form of the Farm Family Socio-Economic Status Scale," Rural Sociology, VIII (1943), 161-169.

[5] Schuler, Ibid., pp. 56-63.

[6] Schuler, Ibid., pp. 56-63; Sewell, Ibid., pp. 161-169; and Margaret Hagood, "Development of a 1940 Rural Farm Living Index for Counties," Rural Sociology, VIII (1943), 171-180.

to dwelling units occupied by 1.5 or more persons per room. The dilapidated condition of the housing is an indirect approach to the value of the dwelling, which has been used on several occasions.[7]

The final index on educational accomplishments has been used successfully by Sewell and Hagood as reported in the previously quoted sources.

The analysis of the data and the format of the tables are guided by the proposition of an inverse relationship between the socio-economic status of the white rural-farm population and its fertility. In the case of South Carolina this has been determined already. Primary interest is therefore centered upon the proposition of a more clearly demarked relationship contingent upon the use of homogeneous fertility areas. In addition it is proposed that the fertility areas will show homogeneity in socio-economic level of living.

As the tabular format is the same throughout, time will be conserved by outlining it at this point. Each index is accepted as a significant measure of socio-economic status.

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[7] A. R. Mangus, Rural Regions of the United States (Works Progress Administration, Special Reports, Government Printing Office, Washington, D. C., 1940); and C. E. Lively and C. Taeuber, Rural Migration in the United States (U. S. D. A., Bureau of Agricultural Economics Research Monograph XIX, Government Printing Office, Washington, D. C., 1939).

Column one of the Table contains the Fertility Areas, column two the index, and column three the measure of the fertility performance. All indexes are computed for the white population or white residences alone. Data on the first five indexes were obtained from the United States Census of Housing: 1950, Volume I, Chapter 40. Data on the sixth index were obtained from the United States Census of Population: 1950, Volume II, Part 40, Chapter B.

Table LI contains data bearing upon the relationship between the per cent of white rural-farm residences lacking piped running water and white rural-farm fertility. The census definition of this means no piped running water on the premises either inside or outside of the dwelling. Water is obtained from wells by hand pulley or other means or from free flowing springs, streams, etc. It must first be noted that this facility is marked by its absence. In no Area does more than one half of the white rural-farm residences have piped running water.

Is there variability in the index within the separate Fertility Areas? In Area 1 the average is about 59 per cent. The low point is 54 per cent and the high point is 67 per cent. There is a spread of 13 points. The Area 2 average is 50 per cent with a low point of 43 per cent and a high point of 55 per cent for a spread of 12 points. The spread of Area 3 is 20 points from a low of 40 per cent and a high of 60 per cent with an average of 53 per cent. Beaufort

Table LI: Relationship Between Per Cent of White Rural-Farm Residences Without Running Water and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of white rural-farm residences without running water	Effective fertility ratios white rural-farm population
Area 1	58.7	524.2
Area 2	49.9	451.5
Area 3	52.8	465.3
Area 4	53.8	560.6
Area 5	63.8	659.0
Area 6	44.8	453.1

1. Bureau of the Census, United States Census of Housing: 1950, Volume I, Chapter 40, Washington, 1952, Tables 32 and 33a; and Table I, Appendix A.

Table LII: Relationship Between Per Cent of White Rural-Farm Residences Having Mechanical Refrigerators and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of white rural-farm residences having mechanical refrigerators	Effective fertility ratios white rural-farm population
Area 1	72.3	524.2
Area 2	76.3	451.5
Area 3	75.2	465.3
Area 4	75.8	560.6
Area 5	65.1	659.0
Area 6	75.1	453.0

1. Bureau of the Census, United States Census of Housing: 1950, Volume I, Chapter 40, Washington, 1952, Tables 33 and 33a; and Table I, Appendix A.

County is the only county showing wide variability. In Area 4 the low point is 50 per cent, the high point is 68 per cent, the average is 54 per cent, and the spread is 18 points. In this Area, Bamberg is the only county showing wide variability. Area 5 has a low of 51 per cent and a high of 75 per cent with an average of 64 per cent and a spread of 24 points. In this area the counties break down into two groupings of equal size, those in the 60's and those in the 50's. Among the latter are Darlington, Florence, Sumter, Clarendon, Williamsburg, and Berkeley. This is largely a contiguous block. But the breakdown has no significance for fertility as the counties are drawn from all levels of the fertility continuum. Area 6 has a spread of 30 points from a low of 21 per cent to a high of 51 per cent with an average of 45 per cent. Charleston County is the only one showing great variability.

Variability is not found in Areas 1 and 2, and it is limited in Areas 3, 4, and 6 if Beaufort, Bamberg, and Charleston Counties are excluded. Area 5 shows variability in the index which is not directly related to fertility.

Is there any significant difference between the socio-economic status of the separate Fertility Areas? The variations from average in Areas 4, 3, 2, and 6 do not overlap the average in Area 5. It is assumed then that the difference between these two groupings is significant. For similar reasons, it is assumed that Area 1 is significantly different

from Areas 2 and 6. Areas 4, 3, 2, and 6 are not significantly different. From these assertions, it follows that the variations in fertility between the Areas should have the same degree of significant difference. That is, the fertility in Area 5 should be significantly different from that in Areas 4, 3, 2, and 6. The fertility within the latter grouping should not be significantly divergent.

A similar distribution is found in the fertility performances. Area 5 has a fertility ratio of 659. That in Area 2 is 452, in Area 3, it is 465, and in Area 6 it is 453. But Areas 4 and 1 are out of line. Area 4 has a fertility ratio of 561 while its socio-economic position is identical with that of Areas 3, 2, and 6. Area 1 has a fertility too low for its socio-economic position; however, these differences are minimized when assessed in terms of the variability in the socio-economic index.

Thus the expected relationship is largely borne out. The fertility performance in Area 5 is significantly above that in Areas 3, 2, and 6. In the same way the fertilities in Area 3, 2, and 6 are not significantly different. However Area 1 should be significantly different in fertility performance from Areas 2 and 6. But its fertility is only 90 points superior to theirs. Area 4 should not be significantly different from Areas 2 and 6 in fertility; yet its fertility ratio is about 108 points superior to theirs. In both Area 2 and 6 the variability around the average in

socio-economic standing overlaps the averages of all of the other Areas. Thus their fertility variability cannot be considered clearly. It seems evident therefore that the relationship established by these data is a general one and that other variables intervene.

Suppose these few counties that deviated considerably from the pattern established by the other counties were eliminated. Would this alter any of the foregoing considerations? No differences become apparent. Areas 6 and 2 still overlap. Areas 4, 3, and 2 overlap. And Areas 4, 3, and 1 overlap. Those groups are therefore not significantly different. Thus the original conclusions still prevail.

Piped running water is dependent upon the availability of utilities or the availability of an independent electric or gas pumping system located on the premises. A majority of the rural farm dwellings in the state are electrified. But electric power is costly in South Carolina, and electric pumps are a heavy drawin upon the system. This item may be too expensive to be considered by many farm families and insufficient variability may have resulted, thus obscuring the fertility analysis.

It appears that the first purchase of electrical equipment following the installation of an electrical system is

an electrical refrigerator[8]. As this is a less costly appliance, it may prove a more significant index than piped running water.

The census makes available information on the number of dwellings of white farm operators possessing mechanical refrigerators. These are not exclusively electrical refrigerators, but they are sufficiently so to serve the present purpose. Table LII contains data bearing upon the relationship between the per cent of white farm residences possessing mechanical refrigerators and white rural-farm fertility.

The same questions proposed for the analysis of Table LI can be used in the analysis of this table. Is there variability in the index within the Fertility Areas? Is there variability among the Fertility Areas? Is this accompanied by fertility variability? And, to what extent are such variations significant?

There is no great variability in the socio-economic index between the Fertility Areas. Area 5 is set apart from the rest with the average of 65 per cent. This is seven points lower than the percentage of 72 in Area 1. But the figure for this Area in turn varies only three points from the percentages in Areas 6 and 3 which are 75.1 and 75.2,

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[8] Bureau of Human Nutrition and Home Economics, Rural Family Living Charts, (U.S.D.A., Washing, D. C., 1952, Chart 19, pp.50-51).

respectively. These of course are virtually identical and in turn are almost identical with the 75.8 per cent in Area 4 and the 76.3 per cent in Area 2.

In terms of intra-area variability, Areas 2, 4, 3, 6, and 1 are so closely located that their variabilities carry each one past the per cent socio-economic standing of the others. However, all are significantly different from the per cent socio-economic standing in Area 5, as their variability does not reach Area 5's percentage.

Fertility analysis is limited to the composite difference between Areas 2, 4, 3, 6, and 1 and Area 5. The former fertility is roughly 491 while the latter is 659. This is a significant difference. The use of this index is to strengthen the conclusions so far reached.

Data on another household appliance are available. They concern the presence of flush toilets in the dwelling of rural-farm whites. Such an index is closely related to the first index, but is more stringent in that it is an appliance more frequently added as an improvement to an existing water system. The earlier reasoning that a more readily obtainable appliance might give more meaningful results was not borne out; therefore, it is possible that the opposite will prove true. In addition the present index's main usefulness is its availability for the white population alone.

Table LIII contains the data bearing on the relationship

among rural-farm whites between the presence of flush toilets in dwellings and fertility performance. It must first be noticed that the dwelling of rural-farm whites in South Carolina by and large lack flush toilets. In no Fertility Area does more than one third of the farm dwellings possess such conveniences. The extent of possession in all of the Fertility Areas is very similar. They range from 20 to 33 per cent possession. The range in each Area tends to spread between 10 and 25 percentage points. This variability prohibits any real analysis. It is disclosed that Areas 6 and 3 are significantly higher in socio-economic standing and lower in fertility performance than Area 5.

One final index of socio-economic status will be attempted. The analysis so far has dealt with currently prevailing factors - the status of the economy, the division of rewards, and the possession of goods and services commonly considered as luxuries. Perhaps more insight will be shed by analysing an index based upon cumulative experience; one that will depict conditions over a number of past years. Such insight is provided by an index based upon the average number of years of completed formal schooling.

The Census Bureau presents such data for the white rural-farm population 25 years of age and over. It is presumed that the lack of formal education is associated with low socio-economic status. An index was constructed on the basis of the per cent of the white rural-farm population 25 years of age and over that had completed six or less years of formal

Table LIII: Relationship Between Per Cent of White Farm Residences Having Flush Toilets and the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of white farm residences having flush toilets	Effective fertility ratios white rural-farm population
Area 1	20.1	524.2
Area 2	26.1	451.5
Area 3	31.3	465.3
Area 4	27.9	560.6
Area 5	21.4	659.0
Area 6	33.2	453.1

1. Bureau of the Census, United States Census of Housing: 1950, Volume I, Chapter 40, Washington, 1952, Tables 33 and 33a; and Table I, Appendix A.

schooling. Six was selected because previous demographic work on the relationship between education and fertility has shown it to be a decisive dividing point in school experience.[9]

The data bearing upon the proposed relationship between the amount of formal schooling and the fertility of the white rural-farm population is presented in Table LIV. At first glance there seem to be considerable difference between the Fertility Areas. However, there is wide variability in educational attainment on the part of the separate counties in Areas 1, 2, and 3. No analysis is possible. It appears that the use of an index based upon cumulative experience is not practicable.

The analysis of the level of living as related to white rural-farm fertility indicates that an inverse relationship exists. As the level of living declines, the fertility performance increases. The relationship is not a straight forward one of step by step changes. Rather, it is one of extremes of the socio-economic continuum. This is in direct agreement with the conclusions reached on the re-examination of the influences of the condition of the general farm economy and the reward distribution system.

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[9] National Resources Committee, The Problems of a Changing Population (Government Printing Office, Washington, D. C., 1938) pp. 145.

Table LIV: Per Cent of White Rural-Farm Population Twenty Five Years of Age and Over with Six Years or Less of Completed Formal Schooling Related to the Fertility of the White Rural-Farm Population by Fertility Areas[1]

Fertility Areas	Per cent of rural-farm whites having six years or less of completed formal schooling	Effective fertility ratios white rural-farm population
Area 1	38.0	524.2
Area 2	34.3	451.5
Area 3	29.2	465.3
Area 4	31.1	560.6
Area 5	44.1	659.0
Area 6	33.3	453.1

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, 1952, Chapter B, Tables 49 and 49a; and Table I, Appendix A.

The trend of this analysis seems so well marked that a re-examination of the partial transfer to an urban economy and its resulting influence on white rural-farm fertility will not be undertaken. Its influence has already been noted, as has its limitation by other variables.

Summary

Work in Chapter IV had established an inverse relationship between socio-economic status and fertility among rural-farm whites. The relationship was general and lacked specific clarity because it appeared to concern more the extremes of the socio-economic continuum than it did the intermediate points. Two factors were proposed as possible blocks to greater clarity. The defined State Economic Areas did not display homogeneous fertility performances. There was considerable variability within some Areas. It was thought that this prevented greater clarity in the established relationship. Also, the social significance of race was not considered in the construction of the State Economic Areas. Information on whites and Negros was lumped into a single index or statistic. This was done despite the recognized social and economic gulf lying between the two groups in which the Negro occupies the lowest statuses. Thus the various socio-economic indexes were not modified for the white race alone. Areas with a small white population and a large Negro population would mirror the socio-economic level of the latter regardless of the true white level.

Therefore, the counties were regrouped into homogeneous Fertility Areas. Six such Areas were developed. While contiguity was not an absolute criterion, it was used so far as it was practicable. The previously used indexes were, wherever possible, reworked with data for whites and used in the re-analysis of the relationship between socio-economic status and fertility. They were supplemented by new indexes whenever possible.

In addition it was proposed that the lack of a relationship between urbanism and the fertility of the white rural-farm population could be examined one last time in an effort to check the earlier conclusions. In both cases, it was proposed that the use of homogeneous fertility areas would demonstrate the existence of the relationships and that greater clarity would be secured through this consolidation.

In a completely different line of thought it was asked if the recent birth trends towards higher rates during and following the Second World War have upset the accepted and expected relationships between fertility and socio-cultural experience. Indirect evidence on this question was offered in the analysis of the relationship between community size and the fertility of the white urban people. If the expected inverse relationships were discovered with exactly the same methods of analysis as used for the white rural-farm population, the continued veracity of existing theory would be supported and in turn the present analysis of rural-farm

fertility would be strengthened.

The analysis was undertaken and it was shown that the fertility of the white urban population increased as one moved from the urban place to the metropolitan area. In general the fertility of urban whites increased as the size of the urban community decreased. It was shown that the fertility of the rural-farm whites exceeded that of urban whites over a 30 year span from 1930 to 1950. It also exceeded the fertility of the rural-nonfarm whites in 1930 and 1940, but was equalled by the latter in 1950. Therefore, the accepted relationship between urban size and urban fertility and between urban and rural fertility does exist, and the method of analysis used in this study is sufficient.

But a re-analysis of the effect of urbanism on white rural-farm fertility failed to demonstrate a relationship. Fertility Areas ranked by per cent of the total population classified as urban did not constitute an inverse ranking by fertility. The conclusions reached in Chapter II were reaffirmed. Urbanism as such is not related to white rural-farm fertility.

The re-examination of the established inverse relationship between socio-economic status and rural-farm fertility was then undertaken. The analysis of the general farm economy failed to uncover any relationship at all. But, a relationship was established when the data were standardized for tenancy and type of farming. A study of the reward

distribution system showed that fertility was inversely related to farm ownership, and there were indications that it was directly related to crop tenancy. In neither case was a regular step by step relationship established. The need to subclassify the general farm economy by tenancy was taken to indicate that the reward distribution system was more important to fertility than the condition of the general farm economy. The confinement of the relationship to one between the extremes was taken to indicate the presence of other variables, and to indicate the limitation of the importance of the socio-economic factors in fertility variation.

The crux analysis of socio-economic status and its impact on fertility was investigated through the prevailing levels of living of the Fertility Areas. The already established inverse relationship was reaffirmed. Once again no step by step relationship was divulged. High levels of living were associated with low fertility and low levels of living with high fertility. But there was too much scatter to indicate a relationship between moderate levels of living and moderate fertility. Other factors must intervene.

Therefore, it was concluded that socio-economic factors were important elements in fertility variability. But they did not operate alone. They were one of a set of factors. Their influence is best seen in terms of extremes. Their independent importance in step by step variability cannot be demonstrated.

CHAPTER SIX

SUMMARY AND CONCLUSIONS

Demographers have established that various socio-cultural groupings in western society have different levels or differentials of reproduction. Of basic importance is the superior reproductive performance of the rural-farm population which has, in the United States for at least 150 years, exceeded the reproductive efforts of the urban population. Such variability is extremely important because urban communites of 25,000 or more people have been shown in the past to have failed to reproduce themselves. In general, the current size or future expansion of urban communities has been dependent, ultimately, upon rural-farm fertility. Adequate use of potential population requires a more comprehensive understanding of rural-farm fertility.

This study undertook the investigation of variable fertility of the white rural-farm people by the analysis of the influence of urbanism, a partial transfer to an urban economy, and socio-economic status upon it.

The low level of urban reproduction, the decline of urban reproduction with increased community size, and the reduction of fertility from rural-farm to rural-nonfarm to urban residence are cited as evidences of the influence of urbanism. Urbanism was accepted as the entire gamut of socio-cultural factors of urban life including curtailed

family life, reduced functions and necessity of family life, increased non-family interests, and heightened economic burdens on the family. As this general influence of urban life patterns was gradually invading the rural environment, it was proposed that rural-farm fertility ratios would be reduced. Specifically, it was proposed that indexes of urbanism could be inversely related to an index of fertility of the white rural-farm population.

Discussions of the reasons or motivations for reduced urban family size emphasize the demands and potentials of the urban economy and the family desires for status. The urban family is a consumption unit; little or no family production is permitted. Its economy, therefore, is extremely inelastic. Few, if any, provisions or alterations are permitted or possible. Salaries, wages, and raises are not decided by family size and requirements. Moreover, the family as an all-consumption unit cannot make basic intra-family changes in its economy. And, children cannot be made productive units of the economy. These are strong economic motivations to limit fertility and family size. As opposed to this the farm child can take up chores and otherwise aid in the economic life of the family. As the family produces part of its food supply by its own efforts, less economic drain is felt by an increase in size. It need not oppose, at least on economic grounds, large families. Finally, the urban family is surrounded by goods and services requiring considerable financial investment which are being defined

more and more as necessities of life. Opposed to these are the economic burdens of child bearing and rearing. The urban family to this time has been moving to reduce the economic burden of children in favor of the former expenditures. It was proposed, therefore, that as rural families transferred their economic activities to urban areas, they would accordingly reduce their fertility. Specifically, it was proposed that indexes of a partial transfer to an urban economy on the part of the rural-farm population would be related inversely to an index of fertility among rural-farm whites.

Previous investigations have demonstrated that generally fertility is related inversely to socio-economic status. This seems to be true also for the rural-farm population. It was proposed, therefore, that indexes of socio-economic status would be related inversely to an index of the fertility of the white rural-farm population.

South Carolina was selected as the area of the study. The author worked there and would have the immediate benefit of local experiences. South Carolina had adequate proportions of rural and urban population, sufficient socio-economic variations, adequate part-time farming activities, and a large enough number of counties for the application of standard measures. It also presented homogeneity in religious practices and nationality, both recognized influences upon fertility performance. The selection of South Carolina required one restriction upon the study. It was necessary

to restrict it to the study of the white rural-farm population. About 39 per cent of the South Carolina population is Negro. Of these about 70 per cent are rural residents and 45 per cent are rural-farm residents. They are not evenly distributed over the state but tend to live in the Coast Plain. As there are large economic and social gulfs between the whites and Negros, the analysis in some areas would have been biased if there had been no standardization for race.

Data were obtained from the published reports of the United States Bureau of the Census on population, housing, and agriculture. The data bearing upon the white rural-farm population were made available in county units. Thus, the county was accepted as the basic unit of analysis. This was a drawback as an entire county had to be treated as a homogeneous social entity when in reality this was not always so.

The county form of presentation also prohibits the direct analysis of relationships. All socio-cultural characteristics are related to the county. Thus, cross references must be made in terms of the county. That is, counties must be ranked by one characteristic and then by another characteristic, and finally these rankings must be compared to determine the existence and nature of the relationship.

It was found necessary to modify the original scheme of the analysis. The number of variables involved and the ambiguity of the results led to the consideration of larger units than the county. These were developed out of observed simi-

larities in fertility performance among groupings of contiguous counties. Two systems of groupings were used. The first, a series of groupings of counties within each state on the basis of the possession of similar social and economic characteristics, was devised by the Bureau of the Census in 1945. The second system was a series of groupings of counties by similarity of fertility performance. Both systems were used in the analysis of the influence of socio-economic status and were then used to reanalyze some aspects of urbanity and a partial transfer to an urban economy.

The analysis of the relationship between urbanism and white rural-farm fertility was based upon five indexes. These were:

I. Size of the largest urban community
II. Total populations classified as urban
III. Number of urban communites
IV. Per cent of population classified as urban
V. Density of the farm worker population

The first four indexes failed to disclose the presence of any relationship. The fifth index pointed to a direct relationship. An inverse relationship had been expected on the grounds that isolated rural farm families would have fewer urban contacts and higher fertility. The discovered direct relationship was interpreted as indicating the fundamental importance of either or both part-time farming and socio-economic status. Both of these factors were examined in the rest of the study. The analysis of the above data resulted

in the conclusion that urbanism as a general phenomenon is not related to the fertility of the white rural-farm population. Distance from the city and the number of urban contacts with the city are not significant factors in the reduction of fertility among the rural-farm whites. As it is known that rural-farm fertility exceeds urban fertility and that until recently urban fertility has been leading rural fertility in a general decline, it was proposed that some specific aspect of the urban culture not sufficiently accounted for in the general urban contact indexes caused the decline.

A clue to this aspect was offered in the fifth index. The prospect of a partial transfer to an urban economy was studied first. Here it was presumed that gaining a portion of the family income from urban sources makes the family economy more rigid and intensifies the absorption of urban values. Four indexes were used to measure the partial transfer to an urban economy. These were:

I. Per cent of employed population in agriculture

II. Per cent of employed white population in agriculture

III. Per cent of farm operators working off of their farms 100 days or more in 1949

IV. Per cent of part-time farms.

With the use of the first index a direct relationship with a correlation strength of 0.52 was established. The more the rural-farm population confined its activities to farming, the higher its fertility became. Index two offered a modification of the original index for the white population alone.

The relationship was strengthened as the correlation became 0.60. Decidedly, full pursuit of farming by the white farming population is directly related to its fertility.

When index three was standardized for the presence of urban communities, an inverse relationship was observed between off-farm work and the fertility of the white rural-farm population. This was not true for standardization of index four. While neither is as definite as indexes one and two, both support them.

A partial transfer to an urban economy as symbolized by reduced farm employment, off-farm work by farmers, and part-time farms is inversely related to the fertility of the white rural-farm population. Thus the original implication of urban contact is reformed to one of intimate economic contacts and intimate social contacts.

Numerous studies have demonstrated that fertility is inversely related to socio-economic status and that this is true as well for the rural-farm population. A final area of this study was the analysis of the influence of socio-economic status on the fertility among rural-farm whites in South Carolina.

The analysis was subdivided into a study of the general condition of the farm economy, the reward distribution system and the level of living. To measure the reward distribution system the following indexes were used:

I. Per cent of white farm tenancy

II. Per cent of white farm crop tenancy

III. Per cent of white farm ownership

Indexes one and two proved useless. This was attributed to the ambiguity of the census classification system. Index three was used successfully. Among rural-farm whites, ownership is inversely related to fertility. The relationship has a coefficient of correlation of 0.60 which indicates moderate strength. Therefore socio-economic status, as reflected by position in the reward distribution system, is inversely related to fertility among rural-farm whites.

The approach to the general condition of the farm economy was made through the study of soil areas, reasoning that the soil areas would imply poor farms and poor economic conditions. The substance of the analysis showed that in the interior sections of the state the farm people in good soil had lower fertility performances than the people in poor soil areas. However, this was not true for the Coast Plain Area. In this region good soil areas were associated with high fertility. As these were areas of high tenancy, it was inferred that the socio-economic organization of the farms was more significant. Thus, soil quality is not a factor of independent importance.

It was apparent that within the soil type areas there were definite alliances and divisions among the counties. This was so strikingly apparent that a new approach in terms

of groupings of counties was undertaken. The Bureau of the Census presented such an aggregation in the concept of State Economic Area, an assemblage of counties on the basis of similarity in social, demographic and economic characteristics. This classification was somewhat in line with groupings by soil-type and by similar fertility performance.

The proposed socio-economic analysis was transferred to the study of State Economic Areas. General economic condition was measured by the average size of farms, crop areas harvested, value of lands and buildings, farm products, and farm implements and machinery. The analysis of collected data demonstrated that the economic well-being of the farm enterprise was inversely related to the fertility of the white rural-farm population. However, full explanation was not offered by this factor alone. It was deduced that an accompanying factor, the reward distribution system, was important. This had already shown in the analysis of a simple ranking of the counties.

The analysis of the reward distribution system was repeated, substituting State Economic Areas for the original county unit. The analysis was not as clear cut as had been hoped. However, the earlier unequivocal relationship between the two variables was reaffirmed. A new index based upon the use of paid wage laborers in farming was used to advantage. It was shown that those areas characterized by high rates of paid wages were also high in fertility.

A third element of the socio-economic factor, level of living, was analyzed through the State Economic Areas. The limitation of fertility was assumed to mirror the acceptance of high socio-economic tastes in goods and services and the curtailing of a major obstacle, children, in an effort to attain and retain these desirable things.

The following were used as indexes of level of living status:

I. Per cent of dwellings having running water
II. Per cent of dwellings having electricity
III. Per cent of dwellings having a telephone
IV. Per cent of dwellings having a tractor
V. Per cent of dwellings having an automobile

It was found that too large a per cent of rural farms had electricity for it to be useful as a criterion of status. The index on automobiles was also found to be uninterpretable. The other three indexes were used to demonstrate an inverse relationship between level of living and the fertility of the white rural-farm population. Several State Economic Areas showed a definite fertility superiority over the other areas. But as a group they too were characterized by an inverse relationship between level of living and fertility. It is to be remembered that these Areas with high fertility were also characterized by either poor farming land or crop tenancy and wage labor. Considering their basic economic distinction from the other areas, the present analysis indicates the prevailing importance of level of living aspirations.

The use of the State Economic Areas was undertaken with two known limitations, no standardization for race and a lack of homogeneity in fertility performance among the counties making up State Economic Areas 1, 6, and 8, and only moderate homogeneity in fertility performance in the remaining areas. It was proposed that the elimination of these drawbacks would enhance the relationships uncovered in the foregoing work.

It was decided that an analysis be made in terms of groupings of counties having similar fertility performances. This form of grouping destroyed to a large extent the previous State Economic Areas. Six areas were constructed. One of these was a grouping of the four metropolitan counties, Aiken, Charleston, Greenville, and Richland.

The work in Chapter Two had indicated that no relationship existed between urbanism as such and the fertility of the white rural-farm population. It was possible now to examine the influence of the metropolitan community at first hand. No relationship was found to exist. Non-metropolitan Fertility Areas had as low white rural-farm fertility performance as the Metropolitan Fertility Area. This raised the question of urban influences upon urban fertility.

Analysis showed that the fertility of white urban people was less than that of white rural-farm people. This was also true in 1940 and 1930. In the metropolitan counties white

urban fertilities were higher in the urbanized areas and the metropolitan areas than they were in the central cities. Also white urban fertility was shown to increase as the size of the urban community decreased. Therefore, urban influences on urban fertility were experienced. But white rural-farm fertility was not noticeably altered by urban influences. This was again checked by analysis of the Fertility Areas. It was shown that the Fertility Areas with high indexes of urbanism, as measured by per cent of population classified as urban, did not have fertility noticeably lower than less urban Fertility Areas. The analysis justified the belief in urban influences on urban fertility but demonstrated that these influences did not reach the white rural-farm population.

In hopes of achieving greater clarity of relationship, the socio-economic influence on the fertility of the white rural-farm population was re-examined. The previously analyzed factors were shown to be of importance. It was demonstrated that the reward distribution system was of more importance than the condition of the farm economy. Classification by indexes of condition of farm economy were effective only when they had been standardized for the reward distribution system.

The influence of level of living was also examined. New indexes were available. They were based upon:

I. Possession of a mechanical refrigerator

II. Possession of a flush toilet

III. Number of persons per room in the dwelling

IV. Extent of dilapidated housing

V. Population with no more than six years of completed formal schooling

The repeated analysis indicated the expected inverse relationship between level of living and the fertility of the white rural-farm population. However, it indicated the basic difference arose between the counties of the northeast Coast Plain and those in the rest of the state. The former counties consistently showed the highest fertility and the lowest level of living. The relationship was therefore not straightforward and step by step; rather it was one of the differences between the extremes of the level of living continuum.

The original contentions of this study met with varied results. The fertility of the white rural-farm population was not uniform throughout the state. The fertility of rural-farm whites was shown to be unaffected by their degree of general urbanization.

Their fertility was shown to be inversely related to their partial transfer to an urban economy. As more working time is spent off of the farm in obviously urban pursuits, the fertility of rural-farm whites declines.

Finally, among rural-farm whites, fertility was found to be inversely related to the socio-economic status. Separate factors of the economy could be singled out. They were

the general condition of the farm economy, the reward distribution system, and the level of living. In each case an inverse relationship existed.

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APPENDIX A

Table I: Effective Fertility Ratios White Population by Residence[1]

County	Rural-farm	Rural-nonfarm	Urban
Abbeville	526.6	492.8	501.1
Aiken	515.3	540.2	469.4
Allendale	430.7	472.4	-----
Anderson	514.0	531.9	397.1
Bamberg	577.1	498.3	471.1
Barnwell	598.2	485.7	-----
Beaufort	497.5	565.8	556.2
Berkeley	620.4	656.4	-----
Calhoun	457.9	487.8	-----
Charleston	502.6	566.7	473.0
Cherokee	528.3	647.9	409.6
Chester	475.4	512.6	434.4
Chesterfield	659.1	585.4	456.1
Clarendon	706.0	629.0	547.3
Colleton	463.5	589.7	402.6
Darlington	606.1	589.4	402.4
Dillon	684.4	635.3	509.5
Dorchester	533.5	585.0	506.1
Edgefield	444.7	588.8	432.1
Fairfield	457.0	598.9	477.2
Florence	667.6	649.6	468.7
Georgetown	716.5	790.6	546.4
Greenville	430.1	544.0	306.4
Greenwood	407.0	510.6	370.3
Hampton	596.8	551.0	-----
Horry	675.2	691.7	497.2
Jasper	489.8	502.6	-----
Kershaw	605.6	588.3	488.8
Lancaster	543.2	597.3	523.2
Laurens	422.9	464.3	476.0
Lee	548.8	638.0	460.8
Lexington	570.1	573.3	446.8
McCormick	479.6	534.2	-----
Marion	641.4	620.8	518.7
Marlboro	649.4	641.8	478.7
Newberry	430.9	594.6	383.4
Oconee	602.2	587.1	434.5
Orangeburg	560.5	525.6	474.4
Pickens	527.4	554.2	401.2
Richland	435.1	546.8	414.3
Saluda	503.4	491.9	-----
Spartanburg	472.9	513.7	412.2
Sumter	657.7	701.9	522.0
Union	432.6	499.2	462.5
Williamsburg	685.7	642.2	485.8
York	537.8	603.1	414.5

1. Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, Chapter B, Tables 42,48,and 49.

Table II: Effective Fertility Ratios White Rural-Farm and Urban Populations by County[1]

County	White rural-farm fertility			White urban fertility		
	Number of women aged 15-44	Number of children aged 0-4	Effective fertility ratios	Number of women aged 15-44	Number of children aged 0-4	Effective fertility ratios
Abbeville	1052	554	526.6	896	449	501.1
Aiken	1337	689	515.3	3219	1511	469.4
Allendale	202	87	430.7	0	0	-----
Anderson	3496	1797	514.0	8637	3430	397.1
Bamberg	506	292	577.1	745	351	471.1
Barnwell	565	338	598.2	0	0	-----
Beaufort	203	101	497.5	908	505	556.2
Berkeley	822	510	620.4	0	0	-----
Calhoun	463	212	457.9	0	0	-----
Charleston	392	197	502.6	19037	9004	473.0
Cherokee	1963	1037	528.3	2661	1090	409.6
Chester	753	358	475.4	1860	808	434.4
Chesterfield	2479	1634	659.1	638	291	456.1
Clarendon	949	670	706.0	338	185	547.3
Colleton	1191	552	463.5	698	281	402.6
Darlington	1734	1051	606.1	1993	802	402.4
Dillon	1508	1032	684.4	844	430	509.5
Dorchester	701	374	533.5	488	247	506.1
Edgefield	506	225	444.7	368	159	432.1
Fairfield	337	154	457.0	1165	556	477.2
Florence	3640	2430	667.6	4365	2046	468.7
Georgetown	642	460	716.5	1735	948	546.4
Greenville	3834	1651	430.1	29355	8994	306.4
Greenwood	801	326	407.0	4264	1579	370.3
Hampton	501	299	596.8	0	0	-----
Horry	5607	3786	675.2	1764	877	497.2
Jasper	245	120	489.8	0	0	-----

Table II (continued): Effective Fertility Ratios White Rural-Farm and Urban Populations by County[1]

County	White rural-farm fertility			White urban fertility		
	Number of women aged 15-44	Number of children aged 0-4	Effective fertility ratios	Number of women aged 15-44	Number of children aged 0-4	Effective fertility ratios
Kershaw	1217	737	605.6	1029	503	488.8
Lancaster	1353	735	543.2	2200	1151	523.2
Laurens	1433	606	422.9	2767	1317	476.0
Lee	820	450	548.8	408	188	460.8
Lexington	2154	1228	570.1	2648	1183	446.8
McCormick	196	94	479.6	0	0	-----
Marion	1322	848	641.4	1446	750	518.7
Marlboro	947	615	649.4	1387	664	478.7
Newberry	1121	483	430.9	2037	781	383.4
Oconee	2617	1576	602.2	1291	561	434.5
Orangeburg	1877	1052	560.5	1878	891	474.4
Pickens	2715	1432	527.4	1391	558	401.2
Richland	917	399	435.1	20242	8386	414.3
Saluda	1158	583	503.4	0	0	-----
Spartanburg	4673	2210	472.9	9854	4062	412.2
Sumter	707	465	657.7	3812	1990	522.0
Union	860	372	432.6	1773	820	462.5
Williamsburg	1696	1163	685.7	529	257	485.8
York	1718	924	537.8	8033	3330	414.5

1.Bureau of the Census, United States Census of Population: 1950, Volume II, Part 40, Washington, Chapter B, Tables 42, 48, and 49.

AUTOBIOGRAPHY

Robert K. Hirzel was born on January 9, 1925 in the city of Wilmington, Delaware. He is the second son of Alfred S. and Mary K. Hirzel, originally of that city. His education was obtained in the public schools of Wilmington, Delaware and New Castle, Pennsylvania. He is a graduate of the New Castle Senior High School.

In 1946 he was graduated from the Pennsylvania State University with a B. A. degree. From this date to 1949 he was successively employed by Strawbridge and Clothier of Philadelphia, Pennsylvania and Sears, Roebuck and Company of Chicago, Illinois in their store management programs.

He returned to the Pennsylvania State University in 1949 and obtained an M.A. degree in Sociology from that institution in 1950. From 1950 to 1952 he was a graduate student in Sociology at the Louisiana State University where he held a part-time teaching assistantship. From 1952 to the present date he has been employed as an Assistant Professor of Sociology at Winthrop College, The South Carolina College for Women, Rock Hill, South Carolina.

He married the former Virginia Ann Ladd of Waverly, Pennsylvania in 1946. They have two children, Robert Ladd, born in 1948; and Timothy Kane, born in 1951.

EXAMINATION AND THESIS REPORT

Candidate: **Robert K. Hirsel**

Major Field: **Sociology**

Title of Thesis: **THE INFLUENCE OF URBAN FACTORS UPON THE FERTILITY OF THE WHITE RURAL-FARM POPULATION OF SOUTH CAROLINA**

Approved:

Howard W. Hill
Major Professor and Chairman

Richard J. Russell
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